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A *Revista Brasileira de Entomologia* destina-se à publicação de trabalhos originais que podem ser redigidos em qualquer dos seguintes idiomas: Português, Alemão, Espanhol, Francês, Inglês, Italiano e Latim. O sumário deverá ser em Francês ou Inglês.

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10.º CONGRESSO INTERNACIONAL DE ENTOMOLOGIA

MONTREAL, CANADA, 1956

O 10.º Congresso Internacional de Entomologia será realizado em Montreal, de 17 a 25 de Agôsto de 1956. Após o Congresso serão organizadas excursões a localidades de interêsse entomológico.

Todos aquêles que pretendam comparecer ao Congresso e desejem informes adicionais sôbre o mesmo deverão dirigir-se, com a possível brevidade, ao Secretário, Mr. J. A. Downes, Division of Entomology, Sciense Service Building, Ottawa, Ontario, Canadá.

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SÔBRE UMA *FORCIPOMYIA* QUE SUGA PHASMIDAE (DIPTERA, NEMATOCERA, CERATOPOGONIDAE). (1)

O. P. FORATTINI e J. LANE

O achado de Ceratopogonídeos sugando outros insetos é sempre interessante. Embora as observações sejam numerosas, não são de tal monta que constituam fato suficientemente conhecido em todos os seus detalhes. Recebemos há diversos anos, dois exemplares dessa família que sòmente agora conseguimos estudar.

Num tubo com um Fasmídeo coletado pelo Dr. G. B. Fairchild no Panamá, encontramos dois Ceratopogonídeos que constituem objeto desta nota.

Devemos notar que, em várias partes da Terra, foram observados Ceratopogonídeos sugando outros artrópodos tendo tais observações sido consideradas de suficiente importância para merecerem publicação. A bibliografia, como se verá a seguir, é apreciável. Tão singulares hábitos merecem consideração por parte dos dipterologistas e nós aquí aproveitamos a ocasião para trazer também o nosso ponto de vista sôbre esse assunto.

A família de Dípteros que mais se aproxima dos Ceratopogonídeos são os Quironomídeos. Nestes, as partes bucais de muitas espécies são muito reduzidas e alguns autores acham que os adultos de pouco ou nada se alimentam. Malloch (12) porém, afirma que são elas suficientes para que o inseto possa se alimentar do pólen das flores.

Afim de abreviar nosso trabalho seguimos a classificação subgenérica proposta por Wirth (15).

Em *"Stilobezziini"* e *"Stenoxenini"* bem como nos gêneros *Alluadomyia* e *Ceratopogon* encontramos espécies francamente predadoras em que as fêmeas sugam a hemolinfa de suas prêsas. Provàvelmente as espécies de *Dasyhelea* também teriam os mesmos hábitos.

O primeiro desvio dêste hábito aparece em espécies de *Forci*

(1) Trabalho do Departamento de Parasitologia da Faculdade de Higiene Faculdade de Higiene e Saúde Pública da Universidade de São Paulo. (Diretor Prof. Dr. Paulo C. de A. Antunes). Recebido para publicação a 28 de Abril de 1955.

pomyia, em tôdas as do gênero *Pterobosca e em* algumas de *Lasiohelea* que procuram Artrópodos relativamente grandes como espécies de Fasmideos, larvas de Lepidópteros, adultos de Odonatas e mesmo Opiliões. No grupo acima citado as fêmeas do Ceratopogonídeos se fixam enquanto sugam. Além de exercerem a hematofagia conseguem não sòmente suporte, mas também são transportadas pelos seus hospedeiros. Dêsse hábito resulta que algumas espécies de *Pterobosca* ficam com o abdômen de tal maneira distendido que parece um saco. Nele nota-se grande quantidade de ovos. Dessa maneira, duvidamos que em tal estado possam voar.

Possìvelmente, as espécies de *Atrichopogon* ocupam posição intermediária entre os dois tipos de hematofagia acima mencionados.

No gênero *Lasiohelea* algumas espécies procuram insetos maiores enquanto que outras se alimentam em animais de sangue quente.

No gênero *Culicoides* observou-se um fáto que indicaria hábito primitivo de sugar hemolinfa de artrópodos. Trata-se do *Culicoides anophelis* Edwards, 1922 que foi encontrado fixado a mosquitos *Anopheles* sugando o sangue ingerido pelos mesmos. As demais e numerosas espécies dêste gênero procuram animais de sangue quente para os seus repastos sanguíneos. As espécies de *Leptoconops* são todas hematófagas em animais de sangue quente.

As observações acima citadas parecem indicar três fases no processo evolutivo da hematofagia. A partir das espécies simplesmente predadoras, que agarram presas menores ou mais fracas para sugar a hemolinfa, chegariamos àquelas que atacam indivíduos relativamente muito maiores nas quais se fixam e se alimentam, obtendo ao mesmo tempo apoio e transporte. Finalmente, como etapa posterior, especialisar-se-iam procurando animais de sangue quente. Todas as formas acima mencionadas derivariam de um grupo de hábitos mais primitivos que obteria a sua alimentação diretamente dos vegetais. Êste grupo seria constituido pelos Quironomídeos.

Damos abaixo uma lista dos Ceratopogonídeos encontrados sugando outros insetos e pertencendo ao segundo grupo. Foram êles divididos em quatro categorias conforme os insetos que atacam.

1.ª CATEGORIA. — Sugando *Tipulidae* ou *Culicidae*: *Culicoides anophelis* Edwards, 1922; *Lasiohelea equitans* Edwards, 1933, *insignicornis* Macfie, 1947 e *tipulivora* Macfie, 1936.

2ª. CATEGORIA. — Agarrados às pernas de Fasmideos ou Opiliões: *Forcipomyia ixodoides* (Fiebrig-Gertsz, 1928), *mayeri,* n. n. *obesa* (Costa Lima, 1928); *Lasiohelea opilionivora* Lane, 1947.

3ª. Categoria. — Agarrados às asas de Sialideos, Odonatos e Lepidópteros: *Forcipomyia auronitens* Kieffer, 1910, *eques* (Johannsen, 1908), *fuscicornis* (Coquilett, 1905), *papilionivora* Edwards, 1923, *pectinunguis* (de Meijere, 1923), *peregrina* (Johannsen, 1908); *Lasiohelea aeronautica* Macfie, 1935, *intrepida* Macfie, 1936, *pennanbula* Macfie, 1932, *samoensis* Edwards, 1928; *Peterobosca aerobates* Macfie, 1936, *aeschnosuga* (de Meijere, 1923), *adhesipes* Macfie, 1932, *ariel* Macfie, 1932, *fidens* Macfie, 1936, *incubans* Macfie, 1937,*latipes* Macfie, 1936, *mollipes* Macfie, 1932, *odonatiphila* Macfie, 1932, *palludis* Macfie, 1936; *Trichohelea tonnoiri* Goetghebeuer, 1920.

4ª. Categoria. — Sugando principalmente larvas de Lepidópteros: *Forcipomyia alboclavata* (Kieffer, 1919), ? *australiensis* (Kieffer, 1917), *crudelis* (Karsch, 1886) sugando larva de mosca, *erucicida* (Knab, 1914), *hirtipes* (de Meijere, 1917), *inornatipennis* (Austen, 1912), *inornatipennis ornaticrus* Ingram & Macfie, 1931, *peregrina* (Johannsen, 1928), alimentando-se duma lagarta morta, *propinqua* (Williston, 1896),*squamosa* Lutz, 1914, *tropica* (Kieffer 1917). Conforme Macfie *F. crudelis* Knab, 1914 é sinonima *F. tropica.*

Se separarmos as espécies acima por gêneros teriamos os seguintes números: — *Culicoides,* 1 espécie; *Lasiohelea,* 8 espécies; *Trichohelea,* 1 espécie; *Forcipomyia,* 20 espécies e 1 subespécie e *Pterobosca,* 10 espécies. Temos então um total de 40 espécies e 1 subespécie de Ceratopogonídeos que se alimentam da hemolinfa de outros insetos.

Depois de constatarmos os gráus de hematofagia dos Ceratopogonídeos nos correu um fato que achamos bastante importante na interpretação de tais hábitos.

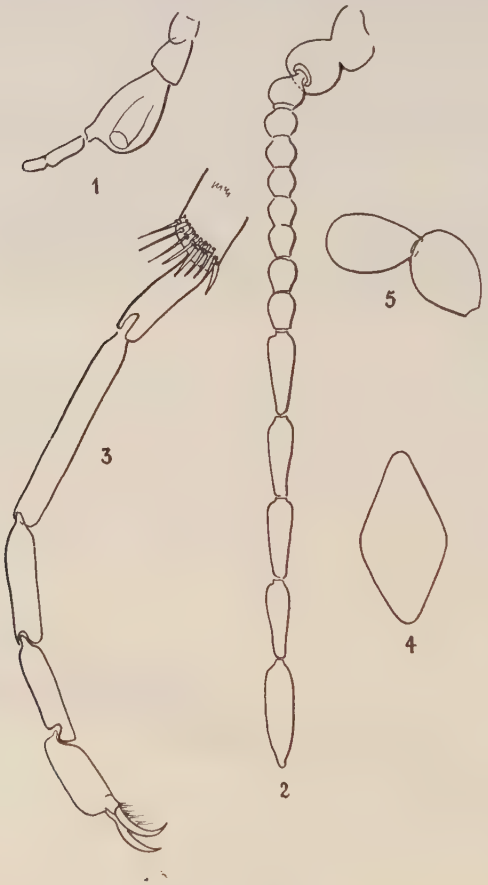
Verificamos que nos gêneros em que o empódio é grande e as garras curtas estão incluidos os Ceratopogonídeos do segundo grupo, i.e., *Forcipomyia, Pterobosca* e *Lasiohelea* pertencendo também, como sabemos, algumas espécies do terceiro grupo como as espécies de *Lasiohelea* que sugam animais de sangue quente. No terceiro grupo ao qual pertencem os Ceratopogonídeos que sugam animais de sangue quente encontramos os gêneros apresentando tanto as garras como o empódio pequenos. São *Culicoides* e *Leptoconops,* exceção feita à *Culicoides anophelis* que pertence ao segundo grupo.

No primeiro grupo, formado pelos Ceratopogonídeos que são predadores e capturam suas presas, encontramos todos os gêneros em que as garras, principalmente as das fêmeas, são grandes, alongadas e desiguais. Podemos portanto, concluir que o alongamento das garras e o desaparecimento do empódio servem para auxiliar o inseto a capturar as suas presas.

Forcipomyia mayeri, n. n.

Phasmidohelea crudelis Mayer, 1937 (nec *Forcipomyia crudelis* Karsch, 1886 et *Forcipomyia crudelis* Knab, 1914), Arb. morph. tax. Ent., Berl., 4: 233.

FÊMEA — Cabeça: Olhos nús, escuros e tocando-se em apreciável extensão na linha média. Palpo (fig. 1) com o segmento III muito dilatado, o órgão sensorial profundo e de abertura circular, segmetnos IV e V alongados e cilíndricos, sendo que IV se apresenta com cêrca de duas vêzes o comprimento de V. Antena (fig. 2) com o toro globoso e esclerosado; flagelo com os segmentos III-X arredondados, XI-XV compridos sendo XV o mais longo e largo; A.R. 1,5.



Tórax marron. Mesonoto e escutelo marrons, com pilosidade esbranquiçada.

Asa hialina. Células radiais presentes, a primeira pouco evidente e quase obliterada; a segunda de comprimento aproximadamente igual ao da primeira, porém bem evidente. Veia transversa r-m presente. Veia M com pequeno pecíolo antes de sua bifurcação. Veia M.2 pouco evidente, principalmente ao nível de sua origem (bifurcação da veia M). Macrotríquias esparsas. Halteres ligeiramente fôscos.

Pernas de coloração marron. Os fêmures de tonalidade um pouco mais escura. Extremidade distal da tíbia posterior (fig. 3) com duas fileiras de cerdas: uma superior e com cêrca de 10 cerdas pequenas e outra inferior e com 8 cerdas maiores. Tarsos com o basitarso menor que o segmento II. T.R. 0,5 e 0,6. Garras tarsais iguais.

Abdômen: Marron, com pilosidade esbranquiçada. Em um dos nossos exemplares, o abdômen apresentava-se extraordinàriamente distendido, principalmente à custa da membrana que une os tergitos e esternitos. No interior dêste abdômen observamos grande número de ovos (fig. 4) com contorno losângico. Duas espermatecas ovais (fig. 5).

Proveniência do material estudado — PANAMÁ, C. Z., Police Station, Rio Pequini, 23.VI.1944 (G.B. Fairchild col).

Observações — Dois exemplares adultos, fêmeas, coletados quando estavam sugando um fasmídeo. Como dissemos acima, um deles estava com o abdômen distendido consideràvelmente pelo acúmulo de ovos enquanto que o outro apresentava-se com aspecto normal. Concordamos com Macfie em considerar o gênero *Phasmidohelea* como sinonimo de *Forcipomyia* pois não existem caracteristicos suficientes para a separação. Assim sendo *Phasmidohelea crudelis* (Mayer, 1937) é homonima tanto de *Forcipomyia crudelis* Knab, 1914 (que Macfie julga sinonimo de *Forcipomyia tropica* Kieffer, 1917) como de *Forcipomyia crudelis* Karsch, 1886 caso esta espécie seja também uma *Forcipomyia* como Macfie pensou. Os nossos exemplares estão registrados nas coleções deste Departamento sob os ns. 10.853 e 10.854.

Agradecimentos

Desejamos aquí consignar os nossos agradecimentos ao Dr. G. B. Fairchild do Gorgas Memorial Laboratory, do Panamá pelo material que foi objeto dêste estudo.

Summary

With the opportunity of studyng specimens of *Forcipomyia* which attached themselves to legs of Phasmids the authors were

able to draw conclusions on the general trends of hematophagous habits and their evolution on *Ceratopogonidae* They also found that *Phasmidohelea crudelis* Mayer, 1937 is a *Forcipomyia* an as the name *crudelis* is homonimous they propose for it the name *mayeri.* They also note that of the two females studied one had the abdomen greatly distended with eggs while other had a normal abdomen. Enlargement of the abdomen seems of secondary importance.

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Rev. Brasil. Ent. 4:7-50 — 15-X-1955 - São Paulo

THE SPECIES OF *DELTOCHILUM* OF THE SUBGENUS *CALHYBOMA* KOLBE

(Coleoptera, Scarabaeidae) (1)

by F. S. PEREIRA C.M.F. *

and

M. A. V. D'ANDRETTA *

Having had before us for study some scarabs of the G. Frey Collection, Munich, we found a specimen of *Deltochilum* which seems at a first glance to be new, but which proved, at closer scrutiny, to be a ♀ of *Deltochilum (Calhyboma) riehli* Harold, 1868. Later we were able to examine a ♂ in the collections of Departamento de Zoologia.

In the collections of this Departamento there is a ♂ specimen identified by Luederwaldt as *D. riehli;* this specimen, however, happens to belong to a new species, which we describe below as *D. costalimai,* n. sp.

In the same collection there is a specimen identified as *D. hypponum* Buq., which we selected as the type of another new species, *D. luederwaldti,* n. sp.

Having before us all this material and many additional specimens, we deemed it useful to revise the subgenus *Calhyboma,* which numbers now 12 species. Our friend A. Martinez kindly sent us the material represented in his collection and informs us that *D. (Calhyboma) pygmaeum* Felsche should be made the type of a new genus. As we do not have sufficient material we leave this matter to our distinguished Argentinian colleague.

Subgenus *Calhyboma* Kolbe

Calhyboma Kolbe, 1893, Stett. Ent. Zeit. 54:191; Shipp, 1897, Ent. Nach. 23 (13):195; Lane, 1946, Pap. Avuls. 7; 173, 175.

Eudactylides Paulian, 1938, Ann. Soc. Ent. Fr. 107:243 (n. nud.); 1939, l. c. 108:9-10. (typus *D. carinatum* Westw, 1837).

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* This research was carried out at the Insect Division of the Departamento de Zoologia da Secretaria da Agricultura de São Paulo, thanks to the means furnished by the CONSELHO NACIONAL DE PESQUISAS. Receveid for publication July 13, 1955.

Calhyboma differs from all other subgenera of *Deltochilum* by having the 9th elytral stria devoid of a basal keel or at most with a very rudimentary keel, and by having tarsi (although small) on the anterior tibia.

Clypeal teeth short, broad, widely spaced and keeled above; upper part of eyes usually large; scutellum completely enclosed by elytra; proepisternum markedly hollowed out and separated from the posterior part of prosternum by a single carina which reaches the sides of the pronotum; on the sides of the metasternum a longitudinal keel, parallel to the median coxa; elytra with 7th interstria strongly keeled at base, and with apical tubercles on interstriae 3 to 7 or on 1, 3, 5 and 7, anterior tibia with 3 strong lateral teeth and with numerous denticles between them, and all basal region, base of the larger teeth with small tuft of hairs; longitudinal carinae of the tibiae with rows of hairs.

Logotypus: Shipp, 1897: (D. burmeisteri Har. 1667) = *D. mexicanum* Burm. 1848.

KEY TO SPECIES OF *DELTOCHILUM*
SUBGENUS *CALHYBOMA*

1 - Elytral interstriae with smooth plates 2
- Elytral interstriae without smooth plates 4
2 - Elytral smooth plates present both on even and odd interstriae, but more frequent on the latte. 6-8 mm. - Argentina ..... 1. *D. pygmaeum* Gillet
- Smooth plates only on odd interstriae ..... 3.
3 - Head coppery; distinct areolated pits on the surface of the head, pronotum and elytra; elytral interstriae uniformly punctuated. 8 mm. - Espírito Santo, Brasil ..... 2. *D. costalimai*, sp.n.
- Head black; finer pits on head, pronotum and elytra; pronotal disk almost smooth; elytral interstriae with grouped punctuation. 13 mm. - Santa Catarina, Brasil ..... 3. *D. riehli* Harold.
4 - Pronotal disk raised, with a tubercle which is longitudinally sulcate ..... 5.
- Pronotal disk not tuberculate ..... 6.
5 - Elytral interstriae punctuated and finely granulous. 13-17 mm. - Northern Brasil. Guianas 4. *D. carinatum* Westwood
- Elytral interstriae rugose. 20-22 mm. - Southern, Brasil ..... 5. *D. elevatum Castelneau*
6 - No notch on sides of pronotum between anterior and lateral angles; colour metallic, green or coppery. 15-20 mm. - Colombia; Brasil; Equador ..... 6. *D. hipponum* Buquet
- A distinct notch between anterior and median angles of pronotum ..... 7.

7 -	Interstriae finely granulous or punctuated.	8.
-	Interstriae markedly rugose	10.
8 -	Color metalic, coppery, with green sheen. 17 mm. - Equador	7. *D. luederwaldti*, sp.n.
-	Color not as above	9.
9 -	Head with deep punctures on sides and occipital region, very fine punctuation on central region. 18-23 mm. - Brasil; Bolivia; Paraguay; Argentina	8. *D. variolosum* Burmeister
-	Head punctuation dense and homogeneous 16-17 mm. - Colombia	9. *D. punctatum* Harold.
10 -	Elytral interstriae deeply punctuated. 18 mm. Brasil	10. *D. verruciferum* Felsche
-	Elytral interstriae finely punctuated	11.
11 -	Elytral striae with foveiform punctuation, with abroad marginal smooth area. 11-13 mm. - Colombia; Equador	11. *D. tessellatum* Bates.
-	Elytral striae with fine punctuation, not foveiform, with no marginal smooth areas. 19-24 mm. Mexico to Bolivia	12. *D. mexicanum* Burmeister.

1) *Deltochilum (calhyboma) pygmaeum* Gill, 1911

Figs. 1-8

Deltochilum pygmaeum Gillet, 1911, Ann. Soc. Belg. 55:316; 1911 in Junk's Col. Cat. Pars 38:36; Bruch, 1911, Rev. Mus. La Plata 4:185; Paulian, 1939, Ann. Soc. Ent. Fr. 108: 9, 10 fig. 7

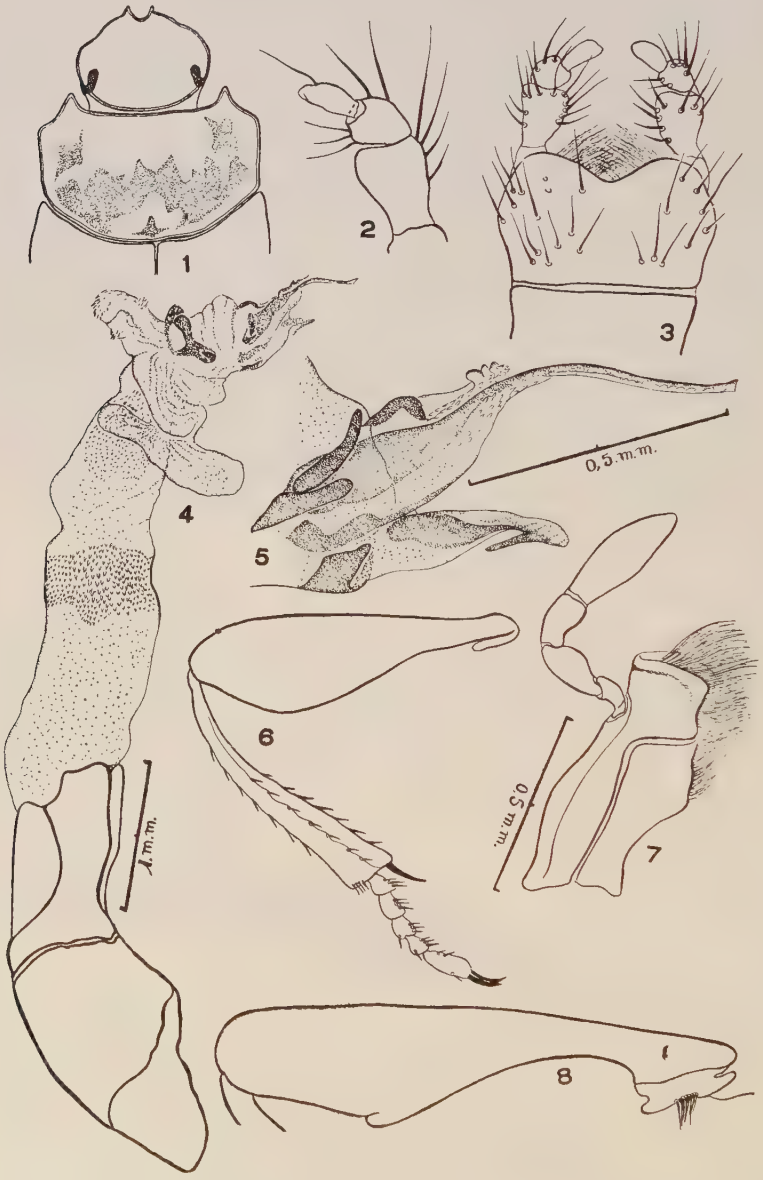
Canthon dromedarius Schmidt, 1922, Arch. Naturg. 88 (3A): 74, 98; Balthasar, 1939, Fol. Zool. Hydrob. 9:184; Blackwelder, 1944, U. S. Nat. Mus. Bull. 185:109.

Distribution: Argentina; Parana Delta VIII.943 (♂); VIII.942, Martinez leg. Buenos Aires VIII. 943, A. Martinez leg.; Las Conchas, Tigre XI.946, A. Martinez leg. (2 exs.); San Isidro II.939, J. B. Daguerre leg.; Entre Rios, Concordia Haiward leg. ex col. Bruch.

Length: 6-8 mm. Humeral width 4, 5-6 mm.

Colour variable, black with cupreous reflection, or black with greenish reflection, with the elytral and pronotal elevations shiny; mouth parts and antennal segments ferrugineous, clava of antena grey.

Male — Head with rounded clypeus, fine punctuation and two vestigial carinae near each eye; genae protruded in front and completely rounded on the posterior angles, genal suture very weak; superior parts of eyes small; antenna with long scape, 2nd segment moniliform, 3rd elongate, 4th to 6th campanuliform, 7th to 9th clothed with grey pile; mentum concave in front; mouth parts with the 1st segment of the labial palpi larger than two following segments together, apically thickened, 2nd. subglobose and 3rd



Deltochilum (Calhyboma) pygmaeum Gill; 1 - Dorsal view of the head and pronotum; 2 - Internal view of labial palpi; 3 - Mentum and labial palpi; 4 - Protruded genitalia ♂; 5 - Detail of apical end of same; 6 - Median leg; 7 - Maxillae and maxillary palpi; 8 - Trochanter and hind femur.

slender and elongate with a subapical seta, the others with many hairs; maxillary palpi with the 1st segment small and slender, subequal to three, but thicker, the 4th very long.

Prothorax with the pronotum very much wider than long, with piliferous punctuation even on the shiny plates, with numerous gibbosities limiting foveae or depression, the disc depressed and this depression limited at the side by a salient curved and sinuous elevation, disc with two small elevations or tubercles, sides with a diminute tubercle above the foveae which are well marked, anterior angles acute and directed frontwards, lateral margin straight up to the medial between the anterior and middle angles, where it is interrupted by a small denticle curved backwards, from which point the margin is strongly concave up to the middle angles which are obtuse and slightly convex up to the posterior angles which are manifest, posterior border not marginate: prosternum very shiny with fine and scarse punctuation, proepisternum with setiferous points on anterior angles, prosternal process widely triangular covered with microscopic and dense sculpture; mesosternum smooth and with an impression on center of anterior margin, mesometasternal suture arched, mesoepisternum very large with microsculptures and very sparse punctuation.

Metathorax with metasternum very wide and with a transversal impression more or less in the middle between medial coxae and posteriorly with two weak and rounded impressions, anterior margin microsculptured, smooth otherwise, sides and mesoepisterna dull and with microsculpture and sparse punctuation.

Abdomen chagrinated with sternites 2-5 subequal in central part, 6th very narrow in the middle and enlarged at the sides, 2-5 with elongate foveae on anterior margin next to suture; pygidium microscopically rugose with very small and rare granules.

Elytra dull with weak and unpunctuated striae much more pronounced in odd intervals and with two rows of very small and yellow hairs, with humeral carina, and apical tubercles on striae, 2, 4, 6 and 7 very much higher than others, carina of 9th interstria absent and in some specimens scarcely indicated; epipleurae very wide.

Anterior legs with tibiae provided with long tarsi nearly half the length of the respective tibia, trochanteres densely chagrinated. Middle legs with coxae chagrinated and oblique, trochanteres very slender and more shiny, femora basally and apically narrowed and with the apical portion more strongly punctuated; tibiae nearly of the same width, spurs very small, the larger one a little longer than the 1st tarsal segment; tarsi with the 2nd segment a little longer than 1st, 3rd and 4th subequal, 5th elongate and equal to anterior ones taken together, claws strong and slightly curved. Posterior

legs with coxa very narrowed, trochanteres very small, femora pedunculate, extremely slender at base and thickened at apex, infero anterior margin carinate, tibiae very narrow and curved on basal portion, more slightly widened at apical end; spurs, tarsi and claws as in middle tibiae.

Female — Different from ♂ for not having posterior femora pedunculate nor narrowed at base.

This species by its small size and pronotal sculpture is easely distinguished from all others of the subgenus; by the smooth plates distributed on all interstriae (although predominating on odd intervals) it is immediatelly separated from *D. costalimai,* n.sp. and *D. riehli* Har.

2. *Deltochilum (Calhyboma) costalimai,* n.sp.

Figs. 9-20

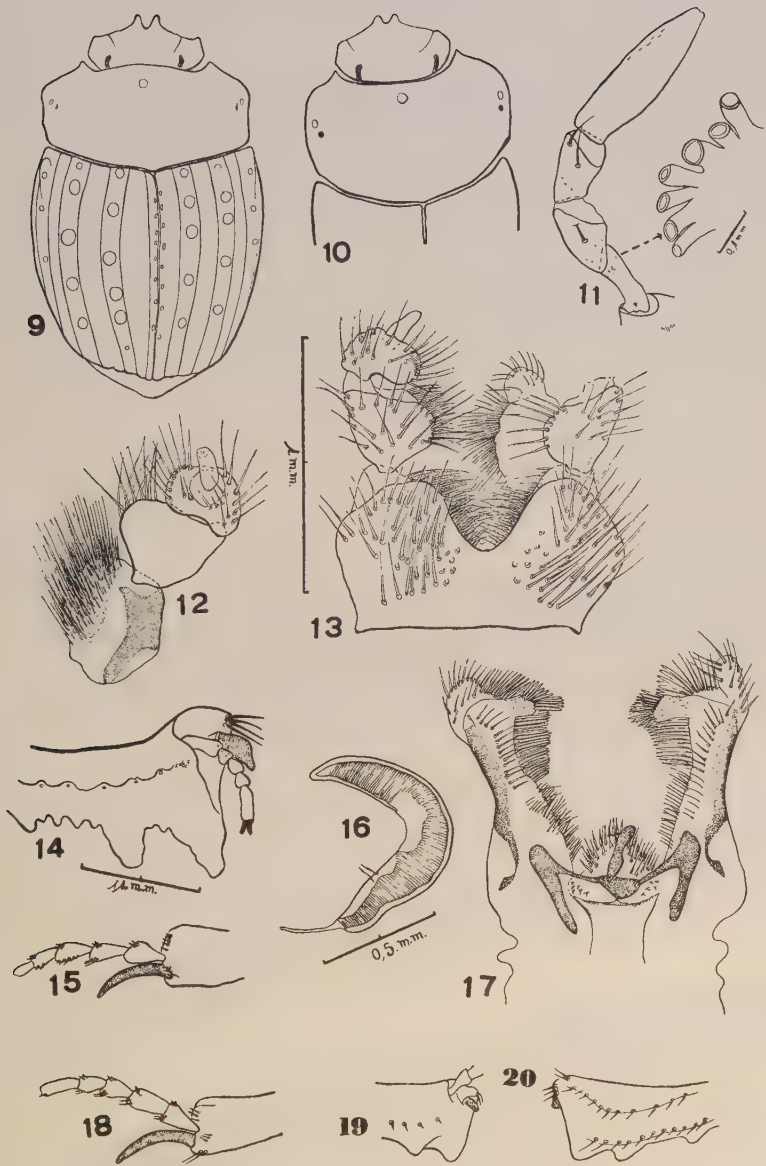
Type Locality: Brasil; Espirito Santo 1901, bought from Staudinger, named by H. Luederwaldt as *D. riehli* Har. Type in the Coll. of the Departamento de Zoologia, São Paulo.

Length 11 mm. Humeral width 8 mm.

Head, anterior angles of the pronotum, basal and apical portion of femora, apex of coxae and trochanteres and apical margin of pygidium of a more or less strong coppery colour; antenna yellow, pronotum dull, elytra holosericeous with smooth and shiny areas on interstriae 1, 3, 5 and 7.

Head with clypeus and gena punctuated throughout with two strong denticles well separated on anterior margin, with anterior genal angles spiniform and the posterior ones rounded, suture between gena and clypeus slightly visible, superior part of eyes small and oval; mentum deeply incised; labial palpi with the 1st segment very large and triangular, the 2nd very narrowed at base and enlarged on internal part of apex, 3rd small, slender and cylindrical; paraglosa, glosa and hypopharynx as in figure 17; maxillary palpi with 1st segment narrow with row of sensorial corpuscles on apex, 2nd triangular, 3rd smaller than anterior and neary cylindrical, 4th very long; antenna with scape longer than 5 following segments taken together, 2nd thick and moniliform, 3rd elongate, more slender and with the length of the two following segments taken together, 4-6 campanuliform, 7-9 with large lamellae and covered with dense pile.

Prothorax with pronotum covered throughout with strong ocellar punctuation each having a small yellow hair, except the smooth green coppery plates on the center of anterior margin, small and rounded fovea with longitudinal furrows on front, disc with



Deltochilum (Calhyboma) costalimai sp. n.; 9 - Dorsal view; 10 - Detail of head and pronotum; 11 - Maxillary palpi and detail of sensorial organs; 12 - Labial palpi (Internal view); 13 - Mentum and labial palpi; 14 - Apical end of fore tibia and tarsi; 15 - Apical end of hind tibia and tarsi; 16 - Spermatheca; 17 - Internal view of paraglossa, glossa and Hypopharynx; 18 - Apical end of median tibia and tarsi; 19 - Ventral view of apical end of the anterior tibia ♀; 20 - Dorsal view of same.

very slight and vestigial longitudinal furrow, all posterior margin covered with ocellar punctuation and angulose on central part, and angles acute and spiniform, medium rounded, and posterior one obsolete; proepisternum with long hairs, posterior part nearly smooth with very small and rare points as in the posternal process which is widely triangular.

Mesothorax with wide scutellum, concave in front, with longitudinal furrow manifest, smooth on anterior part and punctuated on the posterior half, with sides excavated and completely covered by elytra; mesosternum very much narrowed at center, widened at sides, and without punctuation, as in mesoepimeron.

Metathorax with central part of metasternum very projected at front, finely punctuated, and lacking longitudinal median furrow, with sides more thickly sculptured, as in metaepisternum.

Abdomen with sternites strongly punctuated on sides and more sparsely on median region, with exception of 6th which is strongly punctuated even in the middle, 1st sternite widely triangular on center and 5 following subequal; pygidium with strong ocellar and piliferous points and with anterior margin carinate and angulose on center.

Elytra with shiny areas and coppery colour on interstriae 1, 3, 5, and 7, those on first interstria very much smaller, interstriae regularly covered with strong points, without carina on basal portion but with two small cupreous areas, base of 7th with vestigial carina; epipleura narrowed towards apical region.

Anterior legs with coxa and trochanteres strongly punctuated, femora on inferior side covered with very dense ocellar points on apical portion, the dorsal side punctuated and pubescent on apical region and smooth on central region, anterior margin with rows of hairs, the posterior margin excavated and with rows of very small hairs; tibiae obliquely truncate on apex; spurs very small and with a tuft of hairs on internal side (tarsi broken).

Middle legs with coxa finely punctuated widely separated and oblique, trochanteres with more numerous strong punctuations, femora with inferior face totally punctuated and pubescent, the superior margin smoother, anterior margin sharp and the posterior one weakly excavated, tibia slender and very curved with numerous yellow hairs on the carinae principally on external surface, with very large thick and curved spur, and another very small one; tarsi with basitarsus smaller than second segment, 2-4 decreasing in length, 5 cylindrical and larger that the anterior one, all segments ornamented with very fine yellow hairs; claws small and curved.

Posterior legs with coxa smooth and with sparse small points, trochanteres more strongly punctuated, femora with inferior sur-

face completely covered with ocellar points and small hairs with furrow near anterior margin, superior face smooth, posterior margin weakly excavated and the anterior one carinated; tibiae more slender and longer than middle tibiae, spurs robust; tarsi with 1st segment smaller than 2nd, and 3rd subequal, 4th smaller than anterior one, 5 cylindrical and slightly larger than anterior one; claws small and curved.

Different from *D. riehli* Har. by the lovely coppery colour of the head; by the uniform punctuation of elytral interstriae, and by 7th interstria not carinate at base.

3. *Deltochilum (Calhyboma) riehli* Har., 1868

Figs. 21-30

D. riehli Harold, 1868, Col. Heft, 5:79; Gemminger & Harold, 1868, Cat. Col. 3:996; Gillet, 1911, in Junk's Col. Cat. Pars 38:36; Blackwelder, 1944, U. S. Nat. Mus. Bull. 185:203.

D. (Eudactylides) riehli Paulian, 1939 Ann. Soc. Ent. Fr. 108:9, fig. 2.

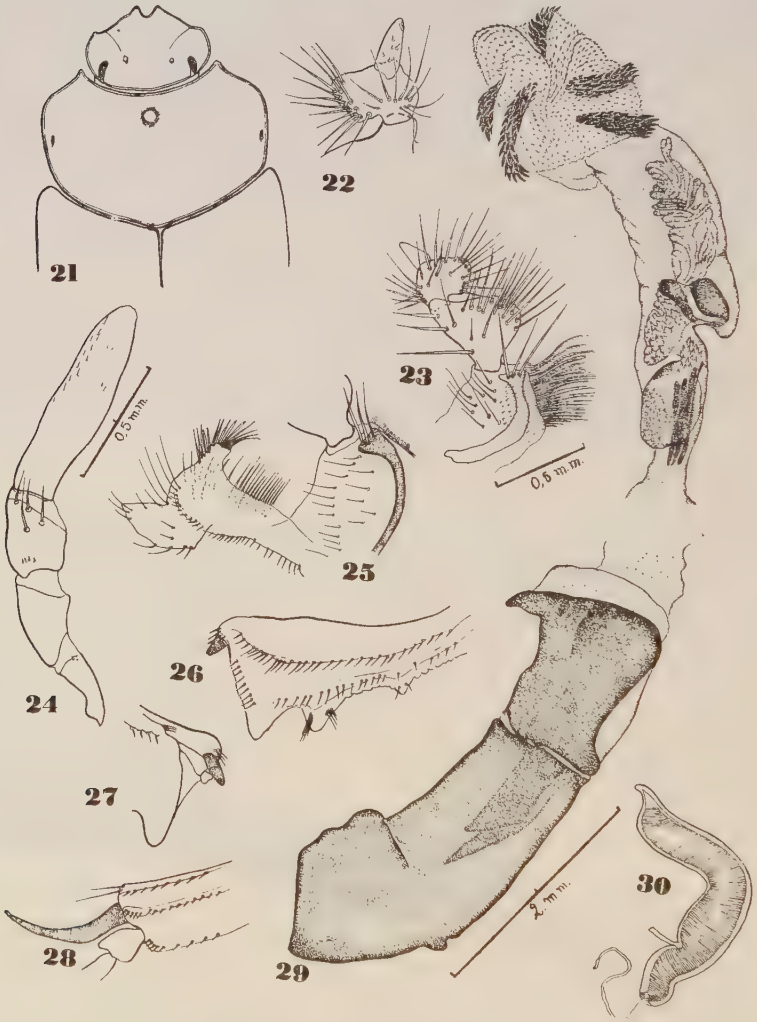
Distribution: S. Catarina; Hansa, Humboldt, Reiter leg. ♀ in the Coll. of Mus. Georg Frey (Muenchen); Nova Teutonia XI.940 Plaumann leg. ♂ in Coll. of the Departamento de Zoologia.

Length. 13 mm. Humeral width 9 mm.

Colour dull black with smoothed and shiny plates on elytra; occipital ridge of head and anterior part of pronotum with weak cupreous reflexes; antennal clava grey, antennal segments and mouth parts reddish.

Female — Head with the clypeus moderately punctuated throughout, on the occipital portion, howerer, with sparse points, anterior margin with two robust and well separated teeth; gena with a punctuation identical to clypeus, strongly dentate in front, and completely rounded on posterior part, with clypeal genal suture obsolete; superior part of eyes small and oval; mouth parts with the 1st segment of labial palpi triangular, 2nd very narrowed at base and thickened at apex 3rd small and elongated, palpiger sclerotized externally and paraglossa with a digitiform sensorial process on exterior side; maxillary palpi with the 1st segment long and slender, the 2nd thickened, 3rd small and thick, the 5th very long; antennae with the scape as long as the four following segments together, 2nd thick and moniliform, 3rd more slender and elongated, 4th wider than longer, 5th and 6th campanuliform, 7th to 9th with large lamellae covered with fine pubescence.

Prothorax with the pronotum covered with small yellow hairs, strongly punctuated on the anterior angles and lateral margins, as well as on the posterior angles, and with a row of ocellar points on posterior margin, which is angular on center, disc with small and sparse points, without median furrow and close to anterior



Deltochilum (Calhyboma) riehli Har.; 21 - Dorsal view of head and pronotum; 22 - Detail of labial palpi; 23 - Labial palpi (Internal view); 24 - Maxillary palpi; 25 - Paraglossa and palpiger; 26 - Dorsal view of apex of anterior tibia; 27 - Ventral view of same; 28 - The apex of the median tibia; 29 - Protruded genitalia ♂; 30 - Spermatheca ♀.

margin, on center part with an elongate smooth and brilliant area; foveae large and elongated, anterior angles sharp and dentiform, middle ones rounded, posterior ones obsolete; proepisternum with dense yellowish pubescence, posterior part of prosternum convex with large separated ocellar points without hairs; prosternal median plate widely triangular.

Mesothorax with a large scutellum concave on anterior part, smooth on anterior half, punctuated and pubescent on posterior portion with a fine medium furrow and with sides depressed and excavated; mesosternum very narrow and constricted on central part, widened on sides which are shiny and with a few ocellar points, mesoepisternum large and smoother.

Metathorax with metasternum very large and projected up to nearly the anterior margin of prosternum, with very fine points on center and stronger points on sides, without indication of median furrow and not excavated on posterior end; metaepisternum narrowed backwards and with fine points; mesoepimeron smooth.

Abdomen with sternites strongly punctuated on sides and more weakly on central part excepting the 6th which is strongly punctuated also on central part. point with very small yellowish hair, 1st sternite smooth and triangular between coxae, the four following ones subequal, the 6th slightly larger than anterior one; pygidium completely covered with elongated points furnished with very small hairs, the base marginated by a carina.

Anterior legs with the coxa punctuated and with yellow hairs on internal and anterior margin; trochanteres small with a few hairs; femora with inferior side completely covered by ocellar points, the superior side smooth on base and with strong sculpturing on apex; anterior and posterior margins with rows of hairs, the posterior weakly excavated; tibia narrow and quite thickened towards apex with the apex nearly straigth, superior and inferior sides with two rows of piliferous points; spurs very small and rudimentary (tarsi missing).

Median legs with coxa widely oblique, separated and curved, with ocellar points, trochanteres small and triangular and also punctuated, femora with ocellar and piliferous points on all inferior side, on the superior side restricted to apical part; tibia slender, curved, with a very small spur and a second one nearly three times longer, robust, and curved; tarsi with the first four segments slightly decreasing in length, and widened towards the apex, the 5th elongate and cylindrical, ending by two small curved claws.

Posterior legs with the coxa less punctuated than the sides of metasternum, the trochanteres triangular and more strongly punctuated than the coxa, femora with the inferior side garnished with piliferous points, the hairs very small, superior side smoother,

the posterior one furrowed, tibia very slender and slightly thickened apically and somewhat curved; spur strong, robust and longer than the two first tarsal segments together; tarsi with segments 1 and 2 subequal and slightly dilated at apex, 3 and 4 subequal but not thickened apically, the 5 slender and cylindrical and slightly shorter than the three anterior ones taken together, with two small claws.

Elytra dull with shiny areas on interstria 1, 3, 5, 7, those of te first interstria much smaller, on the 7th with an elongated cariniform tubercle at base and all with small ocellar points furnished with small patches of hairs, 8th interstria with an obsolete carena, apical tubercles of interstriae only on 1, 3, 5, 6 and 7 striae fine and not punctuated, epipleura smooth and narrowed backwards reaching apex of elytra.

This species is very close to *D. costalimai* n. sp. from which it can be distinguished by the following characteres: Head black, punctuation of head, pronotum and elytra very much weaker, punctuation of pronotum fine on the disc, punctuation of the elytra gathered in small patches, base of 7th interstria carinated.

4. *Deltochilum (Calhyboma) elevatum* (Cast. 1840)

Figs. 43-48

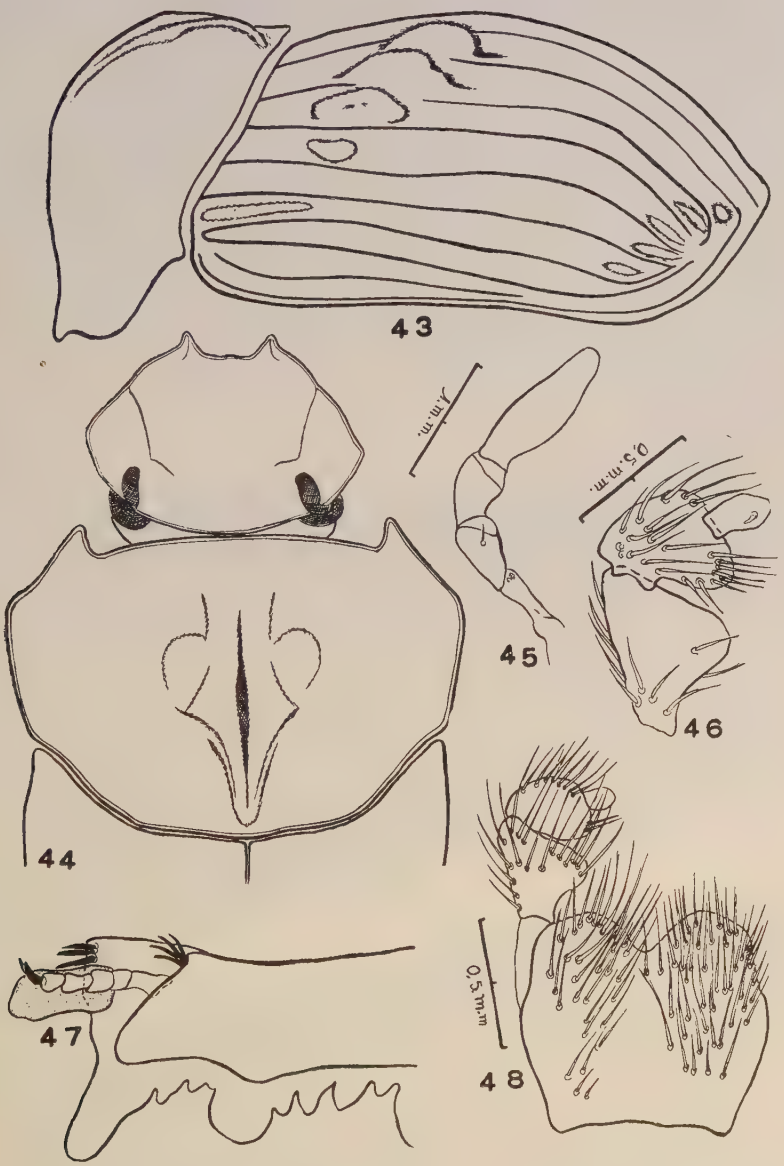
Hyboma elevatum Castelnau 1840, Hist. Nat. Col. 2:74, pl. 4, fig. 3; Burmeister 14848, d'Alton's Zeit. Zool. Zool. Paleont. 1:135.
Deltochilum elevatum Gemminger & Harold, 1868, Cat. Col. 3:995: Gillet 1911, Junk's Col. Cat-Pars 38:35; Blackwelder 1944, U. S. Nat. Mus. Bull. 185:202.

Distribution: S. Paulo; Ipiranga XII.1910 (maas Leg.)
Paraná; Vila Velha 11.945 (Hatschbach leg.) ♂
Argentina; Santiago del Estero XII.940 (1 ♂, 3 ♀); XII.949.
Buenos Aires; Pdo. Torquinst. Vacacuá 1.947 (Martinez leg.) ♀; Tandil IV.932 (Kochler leg.) ♂; 1.954 (Martinez leg.) ♂.

Length 18-22mm. Humeral width 12-13 mm.

Colour black, in some specimens with weak cupreous reflexes, mouth parts and antenna ferrugineous, antennal clava brown, body hairs yellow.

Male — Head with clypeus nearly smooth on center, with very weak points restricted to area between median teeth, nearly the entire surface of clypeus covered with diminute deciduos pubescence, the points slightly stronger on sides and very pronounced and ocellar on gena and posterior margins, median teeth strong with weak sinuosity on external margin, superior part of eyes small, genal suture present, gena not angulose on front, antenna with long scape, 2nd segment moniliform, 3rd elongate, 4-6th slightly campanuliform, 7-9 with lamellae covered with thick brown pile; mentum in-



Deltochilum (Calhyboma) elevatum Cast.; 43 - Lateral view; 44 - Dorsal view of head and pronotum; 45 - Maxillary palpi; 46 - Labial palpi (Internal view); 47 - Ventral view of apex of anterior tibia; 48 - Mentum and labial palpi.

cised in front; mouth parts with the 1st segment of labial palpi very narrowed at base and strongly triangular at middle, 2nd very thick, small and dilated at apex, the 3rd very short and slender; maxillary palpi as in *D. riehli* Har.

Prothorax with pronotum elevated on disc and with furrow widened at middle and extending throughout discal region, carina elevated, furrow and anterior part of pronotum with fine and sparse points, sides and posterior margin with sparse ocellar points but confluent at posterior angles, anterior angles obtuse, median ones completely rounded, small marginal tooth situated closer to anterior angles, posterior angles obtuse, prosternum with proepisternum covered with areolate points furnished with hairs, posterior portion of prosternum with points but without hairs, smooth only on center; prosternal process with ocellar points very thick and nearly confluent.

Mesothorax with the scutellum pubescent on posterior part and smooth on anterior one, with two longitudinal carinae on disc margin, limiting a central field and on their external margin with densely pubescent depressions, mesosternum narrowed at center and wide on sides, central part with rare ocellar points which are, however, numerous on sides; meso-metasternal suture elevated in weak carina, mesoepisternum subquadrangular with large contiguous ocellar points.

Metathorax with the metasternum depressed and punctuated on front, smooth at center and with a large fovea, also smooth, on posterior region, sides with large and sparse ocellar points, metaepisternum punctuated as on lateral parts of metasternum but with a smooth belt on margins.

Abdomen with central part of segments smooth but strongly punctuated on lateral parts, the 1st is, however, punctuated between the coxa, and the 6th has a row of points on anterior margin, the 1st wide, 2-4 subequal, 5th wider and 6th narrower, lateral punctuation stronger and denser on last segments; pygidium triangular completely covered with elongated ocellar points furnished with very fine and short hairs, carinate on margins and angulose at middle of base.

Elytra with fine but foveolated striae, with 10 manifest striae at base and apex, and 9 at center on the fusion of 9th with lateral striae, interstriae very unequal with shiny elevations intermingled with large and irregular ocellar points, interstriae 2, 3, 4 and 5 with high and alongated tubercles on basal third, 7th with strong

basal carina, 9th with vestigial carina, 1st stria reaching apex of 2nd and confluent with 9th, the 3rd confluent with the 4th or interrupted behind, without, however, reaching apex of elytra; epipleura large and punctuated, as the sides of metasternum.

Anterior legs with coxa covered with dense golden pubescence, trochanteres with a tuft of yellow hairs on anterior side, femora completely covered with ocella, furnished with short and robust spiniform hairs particularly on basal region, anterior margin excavated and with row of long hairs, the superior one smoother with points and hairs on apical region, posterior margin with row of short and slender hairs; tibia slender with internal apex spiniform, and thick spurs; tarsi small with the 1st and 4th segments elongate, 2 and 3 short the 5th with strong curved claws.

Median legs with coxa weakly punctuated, tronchanteres incised at center and with a strong tuft of hairs on incision, the terminal end spiniform, femora covered with ocella and carinated at center of inferior side, superior side also punctuated, posterior furrow smooth; tibia short; spurs ferrugineous, the larger one nearly the length of the two first segments together, 1st segment short, 2-4 elongated and subequal, 5th longer than anterior one, with tuft of strong hairs on anterior and external margins, claws long and curved.

Posterior legs with punctuated coxa, trochanteres smooth and without incision on center but with tuft of hair at center, femora dentate, close to trochanteres, very narrowed at base and dilated at center with spines on posterior side, inferior and superior sides with ocellar points, the posterior incised on region between apex and middle spine; tibia very long and curved, spur small and weak, tarsi and claws as in median tibia.

Female — Different from ♂ for having anterior spurs slenderer, medium femora without carina on inferior side, posterior femora not pedunculate, and without basal and median teeth on posterior side.

This species is very much like *D. variolosum* Burm., from which it can be distinguished by the elevated and furrowed carina of pronotum, as well as by the location of the spine on the posterior margin of the hind femora situated more or less at middle of femur, while in *D. variolosum* Burm. it is very close to the apical part. From *D. carinatum* Westw. it is easely distinguished by the completely varicose elytra.

5. *Deltochilum (Calhyboma) carinatum* (Westw. 1840)

Figs. 31-42

Hyboma carinatum Westwood, 1837, Mag. Zool. Bot. 1:256, pl. 7, f. 4; Burmeister 1848, d'Alton's Zeit, Zool. Zoot. Palaeount. 1:135.

Deltochilum monstrosum Dejean 1837, Cat. e Ed. p. 151.

Deltochilum carinatum Gemminger & Harold, 1868, Cat. Col. 4:995; Gillet 1911, Junk's Col. Cat. Pars 38:35; Paulian 1939, Ann. Soc. Ent. Fr. 108:9, 11, ff. 9. 18; Pessoa & Lane 1941, Arq. Zool. 2:429, 435; Blackwelder 1944, U. S. Nat. Mus. Bull. 185:202.

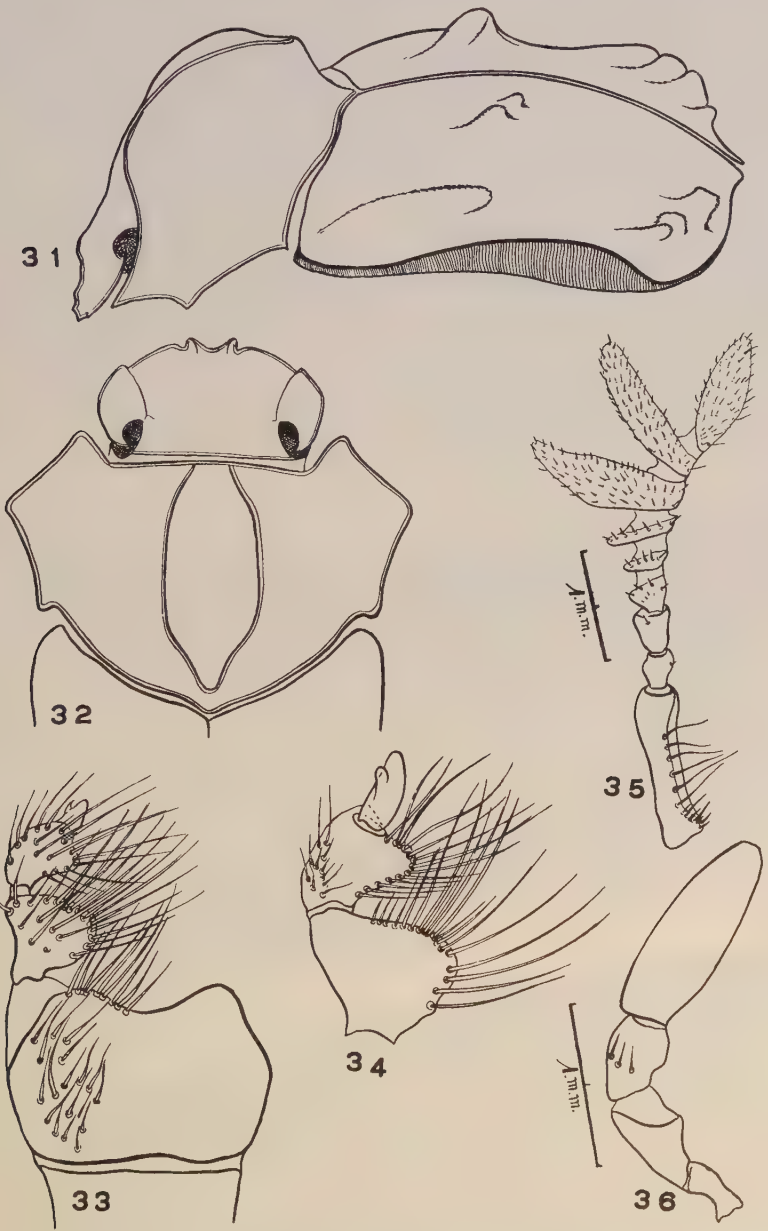
DISTRIBUTION: Amazonas; São Paulo de Olivença VI. 934, VII.935; Rio Parauarí III.937; Rio Arumã XI.935 (2 ♂, 2 ♀); Obidos XI.953.
French Guyana; Cayenne (2 exs. Dept. Zool. and 11 in M. Hist. Nat. Paris, Maroni 1925.
Surinam; Locality? 1901 (Staudinger).
Perú; Iquitos.
Venezuela; Territorio Federal Amazonas, Yavita VIII.947 (R. Lichy leg.).

Length 13-18 mm. Humeral width 7-9,5 mm.

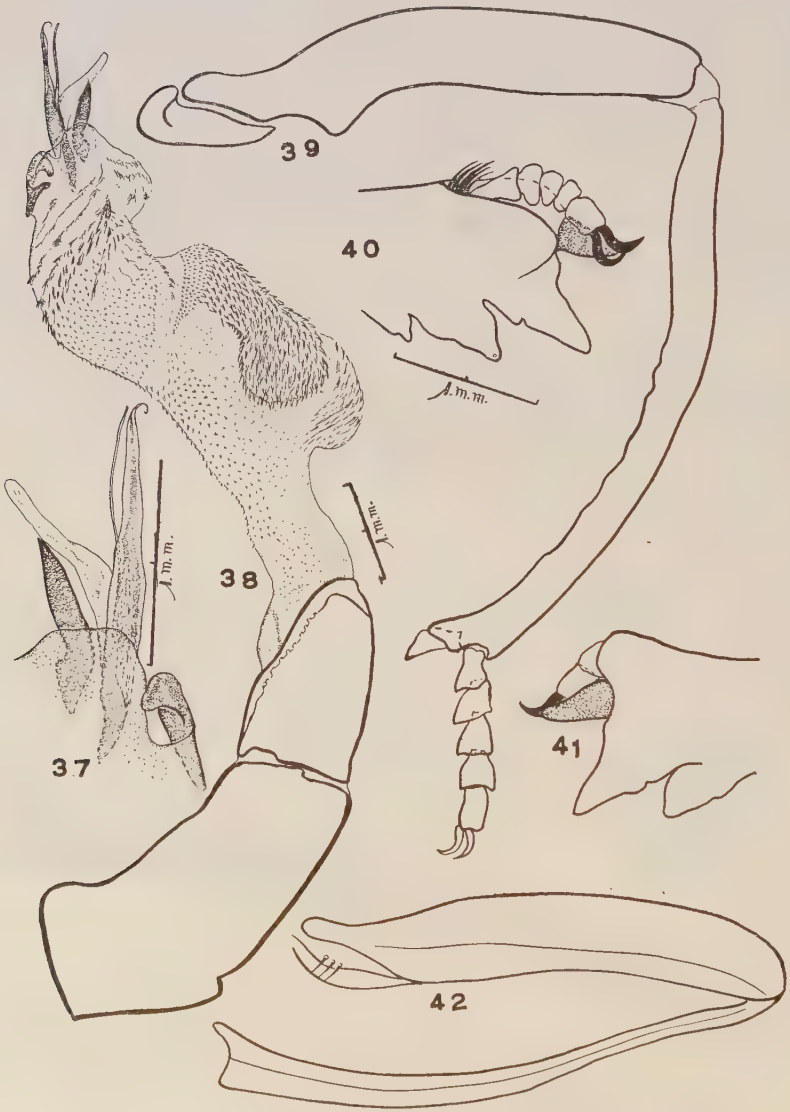
Colour black with very weak cupreous reflexes on carinae of pronotum; mouth parts and antenna reddish with lamellae brownish, pubescence yellow.

MALE — Head completely covered with ocellar points furnished with small hairs; clypeus with 2 strong teeth and with incision on external margins; gena dentiform in front and rounded on posterior angles, genal suture very weak, more pronounced a little beyond eyes; superior portion of eyes small; antenna with very large scape, 2nd segment moniliform, 3rd elongated, 4-6 campanuliform, 7-9 with lamellae covered with fine brownish pile and with small hairs as in other segments; mentum hardly excavated; mouth parts with the 1st segment of labial palpi triangular, 2nd thickened at apex on anterior side, 3rd small, cylindrical and with small digitiform process; maxillary palpi with 1st segment small, narrow and constricted at center, 2nd thickened at apex, 3rd subcylindrical and 4th very long and oval.

Prothorax with 2 strong and high longitudinal carinae on disc of pronotum, united at posterior part and parallel up to anterior margins of central part between two carinae depressed, lateral part of pronotum with elongated ocella; anterior angles, posterior ones and lateral margins with rounded ocella, anterior angles sharp, median ones rounded and withouth denticles between them, posterior angles acute and directed backwards, lateral fovea small and situated very close to lateral margin a little behind median angles; proepisternum with large and contiguous ocella, furnished with ferrugineous hairs, posterior part of prosternum convex and with sparse ocella as in prosternal process.



Deltochilum (Calhyboma) carinatum Westw.; 31 - Lateral view; 32 - Dorsal view of head and pronotum; 33 - Mentum and labial palpi; 34 - Detail of labial palpi; 35 - Antenna; 36 - Maxillary palpi.



Deltochilum (Calhyboma) carinatum Westw.; 37 - Detail of apical end of male genitalia; 38 - Protruded male genitalia; 39 - Hind leg; 40 - Ventral view of apex of anterior tibia; 41 - Dorsal view of same; 42 - Median femur and tibia.

Mesothorax with mesosternum at middle covered with few and rare points, carinated anteriorly and depressed posteriorly, sides and mesoepisterna with large ocellar points.

Metathorax with the matasternum longitudinally furrowed, the furrow deeper backwards, where it is sided by two elongated tubercles, central part with points, anterior and posterior regions with sparse ocella, the lateral ones with large and nearly continguous ocella, metaepisternon with ocella at center, margins smooth.

Abdomen with central part of segments nearly smooth, only with few points, lateral parts, however, with numerous ocella, points and ocella with small yellowish hairs, 1st sternite larger than 4 following ones taken together, with small elevation at level of trochanteres and terminated in point between coxae, 2nd the smallest, 3-5 subequal, 6th slightly wider than anterior and convex, pygidium triangular with large and close ocella, marginated, with carina with apex elevated in point.

Elytra with striae nearly obsolete, principally the lateral ones (at base only 6 first are visible) but always furnished with foveiform points, interstriae with ocellar points intermingled with very small points, interstria 3 and 4 with elongated tubercles a little before middle, 7th interstria with high and sharp carina, declivity between this carina and elytral margins without sign of stria; apical tubercles in 4, 5, 6 and 7; epipleura widened at central part, covered with ocella and separated from elytra by sharp carina.

Anterior legs with coxa covered with ocella at posterior part, and smooth on anterior part, where a dense tuft of hairs, can be found, trochanteres small and with tuft of hairs, femora with inferior side totaly covered with ocella furnished with small hairs, superior side with few piliferous points except apex, anterior margin with row of long hairs, those of posterior margin short, tibia with small spurs; tarsi with the first segment elongated, 2-4 small, wider than longer, 5 elongated smaller than first.

Median legs with small and punctuated coxa principally on anterior portion, trochanteres with tuft of long hairs close to apex on posterior margin, femora with inferior side carinated at middle, dividing itself in two parts covered with ocella, superior side with sparser ocella, tibia short, with large spurs, slightly larger than 1st segment, and another one very small and slender, tarsi with 1st segment small, 2-4 subequal, 5 cylindrical and larger than anterior one, all segments with short and numerous hairs at sides, claws strong and curved.

Posterior legs with coxa smooth at anterior region and furnished with strong ocellar points posteriorly, trochanteres elongated, punctuated and with tuft of hairs at base, femora narrow at basal region, soon after widened and with triangular tooth at

posterior side, inferior face also divided by longitudinal carina and covered with ocella, superior side with piliferous points denser at apical region, tibia very fine and long sinuouse at base and curved at apical portion, apex with crown of strong hairs, spur large, 1st tarsal segment very small, 2-4 subequal, 5 cylindrical and a little larger than anterior one and with 2 strong curved claws.

Female — With metasternum more strongly punctuated at central part, less, however, on posterior fovea which is not so pronounced; 1st abdominal segment without tubercles near trochanteres, posterior femora without triangular tooth on posterior side and not emarginate.

This species is distinct from all others by two very characteristic pronotal carinae, sulcated above; from *D. elevatum* Cast. it is distinguished by having elytral interstria only punctuated, without callosities, except those mentioned above; the present species does not run true with other species of this subgenus and seems to be isolated among them.

6. *Deltochilum (Calhyboma) hypponum* (Buq. 1844)

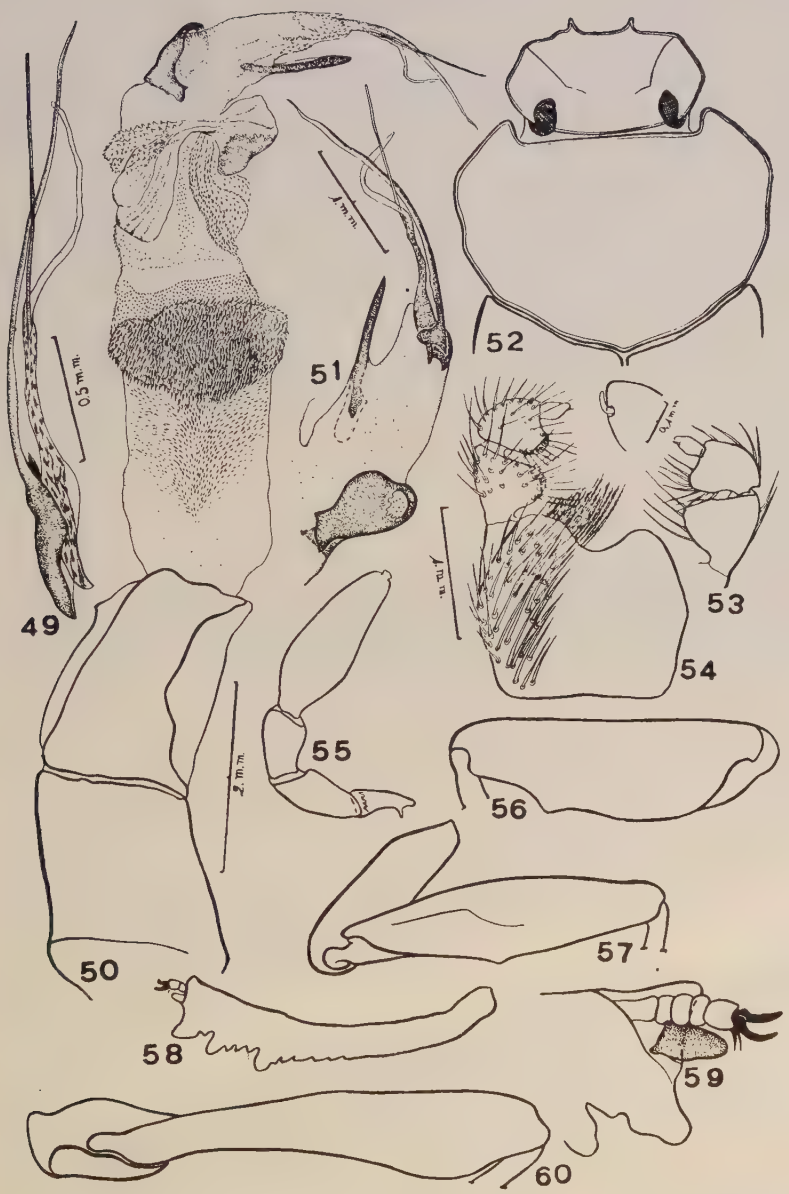
Figs. 49-60

Hyboma hypponum Buquet 1844, Rev. Zool. p. 19.
H. arrogans Buquet 1844, l. c. p. 20.
Deltochilum speciosum Burmeister 1848, d'Alton's Zeit. Zool. Zoot. Palaeont. 1:135: Gemminger & Harold 1868, Cat. Col. 3:996; Ship 1897 Ent. Nachr. 23 (13): 195.
D. hypponum Gemminger & Harold, 1868, Cat. Col. 3:996; Harold 1880 Stett. Ent. Zeit. 41:17; Heyne Taschenberg 1908, Exot. Kaefer p. 61; Gillet 1911, Junk's Col. Cat. Pars 38:36; Paulian 1939, Ann. Soc. Ent. Fr. 108: 9, 16, ff. 8, 18; Blackwelder 1944, U. S. Nat. Mus. Bull. 185:203; Gacharná 1951 Rev. Ac. Colomb. C. 8:222.
D. H. var. arrogans Paulian 1939, l c. p. 17; Gacharná 1951 l c. p. 222.
Distribution: Rio de Janeiro: Nova Friburgo 1925
Colombia: Villavicencio XII.945 (A. Maria leg.); Pasto VIII.917 (ex coll. Nevinson, Martinez).
Equador: Loc.? 1901 (many specimens in Mus. Bruxelles).

Length 15-20 mm. Humeral width 8-12 mm.

Colour metallic green or cupreous on dorsal side, inferiorly green or dark blue predominates, mouth parts and antenna brown, antennal lamellae grey.

Male — Head with median points throughout, less on front between median teeth which is smooth; teeth of clypeus strong with strong incision on external margin, gena dentiform in front and rounded at back, genal suture manifest and more strongly impressed before eyes; superior part of eyes large and rounded; antenna with very long scape, 2nd segment short, 3rd twice as long as 2nd, 4-6 campanuliform, all these with sparse and very fine hairs,



Deltochilum (Calhyboma) hypponum Buq.; 49 - Detail of apical end of male genitalia; 50 - Protruded male genitalia; 51 - Another aspect of apex of same; 52 - Dorsal view of head and pronotum; 53 - Labial palpi and detail of sensorial organs; 54 - Mentum and labial palpi; 55 - Maxyllary palpi; 56 Anterior femur of ♂; 57 - Median femur of ♂; 58 - Dorsal view of anterior tibia ♂; 59 - Ventral view of apex of anterior tibia ♂; 60 - Hind femur ♂.

7-9 produced in large lamellae covered with fine pubescence; mentum weakly emarginated in front; 1st labial palpi very thickened at apex, 2nd dilated at base, 3rd slender and with digitiform process curved near the apex; maxillary palpi with 1st segment short and slender, 2nd progressively towards apex, 3rd shorter and cylindrical, 4th very long and with mammiliform process at apex.

Prothorax with pronotum finely punctuated on disc and on front, lateral sides and posterior margin with stronger points although sparser, disc posteriorly with long furrow, shallow but wide, lateral fovea with small denticle in front, anterior angles scarcely pronounced, median ones rounded and without incision between medium and anterior angles, only with vestiges of interior denticle (however, in some specimens this is well developed), posterior angles obtuse, posterior border not marginated; proepisternum slightly excavated with rare ocellar points furnished with yellowish hairs; posterior part smooth, except close to prosternal process, which is narrow and also punctuated.

Mesothorax with mesosternum narrow at middle and widened at sides, smooth and brilliant in front, punctuated and dull green on posterior region; meso-metasternal suture nearly straight at center and oblique at sides; mesoepisternum subquadrangular and punctuated.

Metathorax with metasternum smooth at center and at posterior end, with sparse points on anterior margin and sides, middle with a fovea between median coxa and a very large depression which occupies all posterior region, metaepisternum smooth on margins and punctuated at center.

Abdomen with segments smooth on central part or with a row of points on posterior margin, sides completely punctuated, 1st segment large and triangular, 2nd very narrow at center, 3rd and 4th a little wider, 5th depressed anteriorly and carinated on posterior margin, 6th wide and with ocellar points invading all central posterior part; pygidium triangular with sparse ocella, with all margins carinated and angulouse at middle of base.

Elytra with very fine striae, with very large foveiform points, 8th and 9th obsolete in front; interstriae level with very small points intermingled with diminute brilliant granules, 7th with basal carina strong, 9th without vestiges of carina, apical tubercles on 3, 4, 5, 6 and 7; epipleura wide, punctuated and darker than adjacents parts.

Anterior legs with posterior part of coxa smooth and anterior part punctuated and with tuft of hairs; trochanteres small, rounded, and with hairs on the anterior margin; femora with ocellar points on all inferior sides, with strong depression nearly up

to apex, superior side smoother, anterior margin with strong tooth near apex; tibia with internal apex dentiform; spur short and quite widened; 1st tarsal segment small, longer than two following segments together, 2-4 small and moniliform, 5th smaller than first and with strong claws.

Median legs with coxa smooth, trochanteres slender and elongated, femora with inferior side less punctuated and with carina ending in a tooth on basal region, superior side punctuated and posterior one with small denticle slightly before middle; tibia short and curved, slightly widened towards apex, with crown of hairs on apical end; the large spur cylindrical, the smaller one slightly widened; tarsi with 1st segment shorter than 2nd, 2-4 subequal, 5th cylindrical, longer than anterior one and furnished with strong curved claws, all with brown hairs at sides.

Posterior legs with coxa punctuated only on posterior margin, trochanteres with tuft of hairs at center of posterior margin and with strong subapical denticles, femora slender at base and thickened apically, with inferior side punctuated at apical region and smoother basally, superior side punctuated, posterior margin slightly thickened close to extremity, tibia very long and slender, curved at base; spurs robust, tarsi with claws as in median tibia.

Female — Distinguishes from ♂ by its more robust posterior femora, with ventral side carina weaker and lacking denticle on posterior side, spur of anterior tibia slenderer.

The present species is distinguished from anterior ones described in this paper by its beautiful metallic colour and from the following ones by lacking the incision between anterior and middle angles of pronotal margins; it is very close to the following species with which it has been at times confused.

7. *Deltochilum (Calhyboma) luederwaldti*, sp. n.

Figs. 61-69

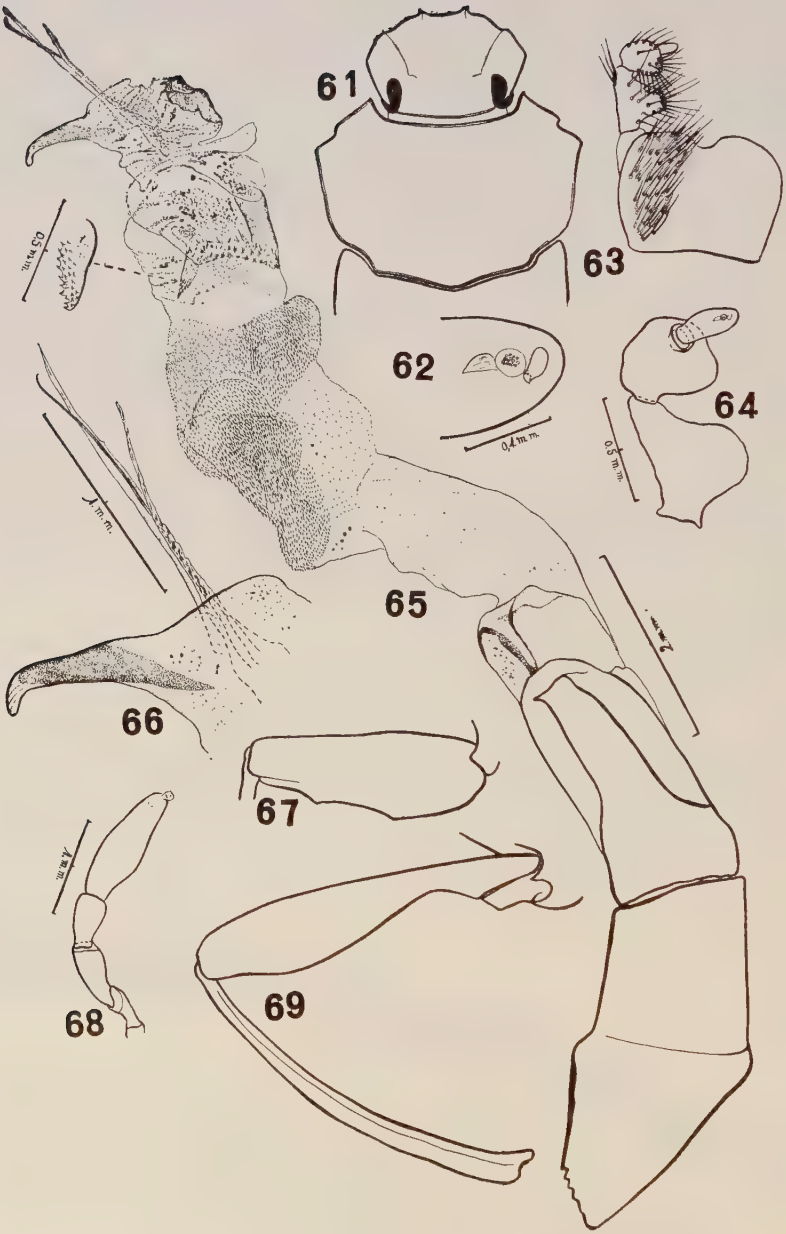
Distribution: Equador: Loc.?, 1915.

Length 17 mm. Humeral width 9 mm.

Colour cupreous with green reflexes in all dorsal side, central part of metasternum and last abdominal segments; pronotum shiny, elytra and pygidium dull, 1st abdominal segment, femora and tibia dark blue, mouth parts and antenna brown.

Male — Close to *D. hypponum* Buq. and confused with this species but distinct, as can be seen by the following description.

Head with clypeus more strongly punctuated principally on lateral margins, on posterior part and gena, region between clypeal teeth smooth, teeth of clypeus strong and their external margins strongly incised, gena dentiform in front, rounded behind and with



Deltochilum (Calhyboma) Luederwaldti sp. n.; 61 - Dorsal view of head and pronotum; 62 - Detail of sensorial organs of labial palpi; 63 - Mentum and labial palpi; 64 - Labial palpi (Internal view); 65 - Protruded male genitalia and detail; 66 - Detail of apical end of same; 67 - Anterior femur; 68 - Maxillary palpi; 69 - Hind femur and tibia.

genal suture visible, superior part of eyes large; antenna with long scape, 2nd segment globose, 3rd elongated, 4-6 campanuliform, 7-9 lamelliform, covered with very fine pile, all segments with small hairs on margins; mentum with small central incision; mouth parts with the 1st segment of labial palpi triangular, 2nd short and thick, 3rd slender and longated with sensorial organs close to apex; maxillary palpi with the 1st segment small and slender at base, 2nd and 3rd subequal, 4th very long and terminated by a sensorial process.

Prothorax with strong impression in all area of pronotum including discal region, with numerous depressions, without vestiges of median furrow, anterior angles spiniform and directed frontwards and outwards, with strong incision between them and median angles, which are very pronounced and expanded, posterior angles hardly indicated; proepisternum depressed and with very large and close ocella furnished with hairs, posterior part with smaller and sparser punctuation, prosternal process triangular and with dense punctuation.

Mesothorax with central region separated by two carinae, with posterior part punctuated and pubescent, and central part smooth, sides sulcated; mesosternum smooth on center, sides with anterior margins smooth and posterior ones with strong ocellar points; mesoepisternum large and also with strong ocellar points; meso-metasternal suture curved in front.

Metathorax with central region separated by two carinae, with posterior part punctuated and pubescent, and central part smooth, sides sulcated; mesosternum smooth on center, sides with anterior margins smooth and posterior ones with ocellar points; mesoepisternum large and also with strong ocellar points; meso-metasternal suture curved in front.

Metathorax with metasternum depressed and punctuated on anterior margin, disc smooth and with large fovea on posterior part, sides with strong ocellar points, metaepisternum smooth on margins and with ocellar points on central part.

Abdomen with segments nearly smooth at center, the first with sparse points and the following with a row of ocellar points on the anterior margin, sides, however, covered with large ocella which are sparse, with the exception of 6th segment which shows smaller and more compact ocella, 1st triangular and more or less rugose, 2nd narrower than following, 3rd and 4th subequal, 5th very much wider, 6th the larger; pygidium triangular, carinated on

margins, rounded at apex and slightly angulose at middle of basal part, entirely covered with large and elongated ocella.

Elytra with weak striae marked only by a blue trace with strong foveae, the lateral ones manifest, although rudimentary on anterior region; interstriae with strong points intermingled with small and very brilliant granules, 7th with strong basal carina, apical tubercles on 3, 4, 5, 6 and 7; epipleura with points which are more numerous in front.

Anterior legs with coxa nerly completely smooth on posterior region and with long pubescence anteriorly; trochanteres with numerous hairs, femora completely covered with ocellar points on inferior side, superior side smoother, anterior margin ciliated and with small denticle close to apex, posterior side with very small hairs, tibia short apically with crown of hairs, spur elongated.

Median legs with microsculptured coxa, trochanteres small and sharp, femora with inferior and superior sides completely punctuated, posterior margin with a central denticle, tibia smaller than femora with rows of reddish hairs on carinae, both sparse, small and nearly equal; tarsi with 1st segment small, 2-4 elongated and subequal, 5th cylindrical and slightly larger than anterior one, all with hairs on margins, claws strong and curved.

Posterior legs with coxa punctuated and carinated at central part, trochanteres incised at middle and with a subapical denticle, femora pedunculated at base and dilated towards apex, with inferior side punctuated and the superior one smoother; posterior margin sulcated and with small dentiform thickness after middle; tibia very long and curved, slightly sinuouse at base and curved apically, spurs and tarsi as in middle tibia.

Female — Unknown.

This species is very close in its general aspect with the anterior, from which it is easily distinguished by the following characters; sides of pronotum strongly incised between anterior and middle angles, by the sculpture of head, pronotum elytra and pygidium which is very much stronger, by anterior angles of pronotum spiniform and directed frontwards and outwards, by median femora without dentiform carina at basal side of inferior face.

This species is dedicated to Hermann Luederwaldt who in the past as a Naturalist of the Museu Paulista dedicated so much of his time to be study of our Coprophagous beetles.

8. *Deltochilum (Calhyboma) variolosum* Burm., 1873

Figs. 70-77

D. variolosum Burmeiter, 1873, Stett. Ent. Zeit. 34:409; Gillet 1911 in Junk's Col. Cat. Pars 38:36; Bruch 1911, Rev. Mus. La Plata 4:186; Paulian 1939, Ann. Soc. Ent. Fr. 108:9, 13; Blackwelder 1944, U. S. Nat. Mus. Bull. 185:203.

Distribution: Argentina: Buenos Aires I.941; Santiago del Estero, Rio Salado X.939 (4 exs.); Salta, San Bernardo I.950 (♂ Martinez leg), Tonono XII.950 (♂ Daguerre leg.); Catamarca (♀ Martinez leg.). Paraguay: Chaco, Boqueron XII.934 (♂ Schulze leg.) Mentioned also from Bolivia.

Length 16-25 mm. Humeral width 9-11 mm.

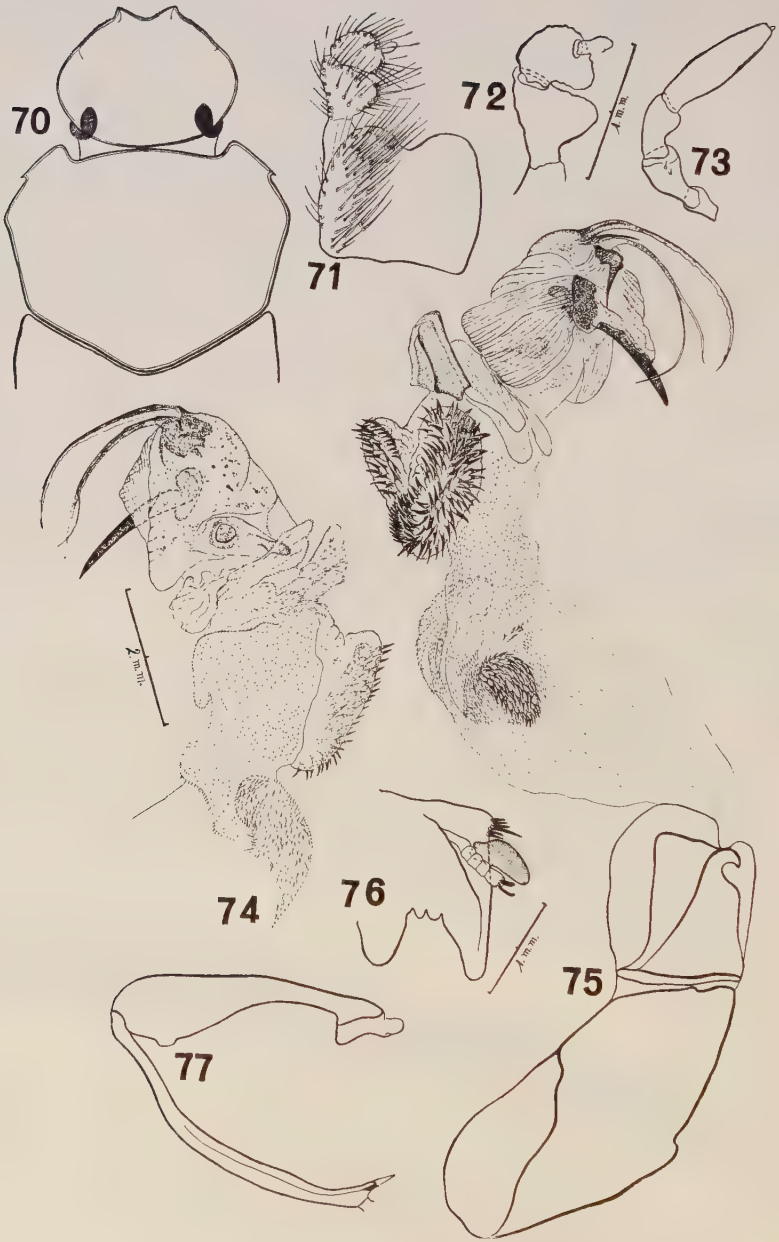
Colour black, bronze or dull.

Male — Head with fine points on clypeus, even between median teeth and external sides of gena, with strong points on posterior margin of head close to eyes, and internal margins of gena; median teeth of clypeus strong with very weak incision on external margin, gena not dentate in front and completely rounded behind, genal suture present, superior part of eyes large; antenna with long scape, 2nd segment moniliform, 3rd and 4th widened towards apex, 5th campanuliform, 6th with a small lamella, 7-9th with strong and large lamellae covered with fine pile; mentum and mouth parts as in fig. 71.

Prothorax with punctuation intermingled with bright granules on all anterior and median surface of disc of pronotum, rugose on posterior half and with large ocella on anterior angles, lateral and basal margins; disc with 2 longitudinal impression, one on the smooth anterior region and the other on the rugose posterior region, lateral fovea small and with a small shiny elevation on anterior margin, anterior angles obtuse, middle one pronounced and posterior ones nearly obsolete, lateral border straight up to middle, between anterior and middles angles, where a strong denticle is found, then concave up to median angles; propisterna with large ocella, points furnished with brown hairs, posterior region equally punctuated, particulary on margins, prosternal process triangular and strongly ocellated.

Mesothorax with mesosternum smoother, separated from metasternum by a cariniform and straight suture on central part, mesoepisternum large and furnished with large ocella.

Metathorax with metasternum rugose and punctuated at center with strong and large ocella at sides and on anterior part which is strongly depressed, posterior fovea very large and elongated, anterior side of central part close to median coxa, before the depression, with two strong denticles.



Deltochilum (Calhyboma variolosum Burm.; 70 - Dorsal view of head and pronotum; 71 - Mentum and labial palpi; 72 - Labial palpi (Internal view); 73 - Maxillary palpi; 74 - Detail of apex of male genitalia; 75 - Protruded male genitalia; 76 - Ventral view of end of anterior tibia; 77 - Hind femur and tibia of male.

Abdomen with segments nearly smooth on central part, the 1st with few points and the others with a row of points on anterior margins, the sides occupied by large occela; pygidium triangular, with strong ocellar points and all margins carinated, angulose at center of base and slightly elevated at apex.

Elytra with weak striae with fovea also weak and interstria strongly varicose, with large ocella, the 7th with strong basal carina and the 9th with carina indicated, 2, 3, 4 and 5 with elongated tubercles on basal third, apical tubercles on 3, 4, 5, 6, 7; epipleura wide with points closer and more appearent.

Anterior legs with coxa smooth on posterior margin, trochanteres very small and with reddish hairs on anterior side, femora completely covered with ocella on inferior side, superior side smooth on central region, punctuated and pubescent on basal and apical sides, anterior margin strongly excavated, tibia with spur widened, tarsi very small with 1st and 5th segments elongated and intermidiate ones shorter, with more width than length, with very small claws.

Median legs with coxa rugose on posterior margin and weakly punctuated on anterior margin, trochanteres with small tuft of hairs close to base, femora with inferior side punctuated and at center with a dentate carina at front and a denticle quite close to apex, superior side with ocella and posterior margin sulcated, tibia very short, with spurs nearly equal, tarsi with the 1st segment short, 2-4 subequal, 5th larger than anterior one and all with reddish hairs at side, claws strong and curved.

Posterior legs with coxa smooth in front and punctuated on posterior region, trochanteres with denticle at base and split apex, furnished with a tuft of hairs on central region, femora pedunculated and very narrow at basal part with a strong apical spine directed backwards, inferior and superior sides with strong ocella, tibia very slender and long, narrow and sinuated a little beyond base, with internal angle of apex expanded in small lamina; spur slender, tarsi with 1st segment small and narrowed at base, 2-4 subequal, 5th elongated, all covered with hairs on margins, claws small and curved.

Female — Head with strong points except on center, where it shows a smooth belt, and with fine points only between the median teeth of clypeus; metasternum without the 2 tubercles on anterior margin, median femora without median carina on the inferior side and without denticle; posterior trochanteres not split at apex and posterior femora without denticle of apical portion on posterior margin; interstriae 2, 3, 4, 5 without elongate tubercles at basal third.

This species although at first sight similar to *D. elevatum* Cast. is, however, easily distinguished from it by the absence of a sulcate carina on pronotum and by the 6th antennal segment which forms a small lamella.

9. *Deltochilum (Calhyboma) punctatum* Har., 1880

D. punctatum Harold 1880, Stett. Ent. Zeit. 41:17; Gillet 1911, Junk's Col. Cat. Pars 38:36; Paulian 1939, Ann. Soc. Ent. Fr. 108:9, 15, fig. 18; Blackwelder 1944, U. S. Nat. Mus. Bull. 185:203; Gacharná 1951, Rev. Ac. Colomb. 8:222.

This species in unknown to me, Harold's description reads as follows:

"*Deltochilum punctatum* (n.sp.): Fusco-cupreum, capite thoraceque sat dense et fortiter punctatis, illo clypeo bidentato, dentibus late distantibus; elytris rugulosis, leviter striatis, striis obsolete foveolato-punctatis; humeris acute carinatis. Long. 18 mm.

Von Ocaña (Landolt!)

Einfarbig kupferbraun, unten sammt den Beinen schawarz mit grünlichem Tone. Der Kopf grob und wiemlich dicht punktirt, das Kopsschild vorn mit zwei spitzen, wie bei hypponum weit auseinander gerückten Zähnem, der Aussenrand zuweilen grünlich. Thorax ebenfalls ziemlich grob und dicht, längs der Mitte etwas feiner und spärlicher punktirt; der Seitenrand in der Mitte eckig. Die Flügeldecken köornelig gerunzelt, sehr seicht gestreift, die Streifen mit wenig tiefen Grübchen besetzt; hinten fünf deutliche Schwillen, die Schulterleiste scharf, etwas länger als bey hypponum. Das Pygidium mattglänzend, punktirt. Vorderschenkel an der untern Kante nahe vor den Knieen mit einem stumpfen Zahne.

Einem düster gefärbten hypponum ähnlich, aber durch die ganz andere Sculptur, insbesondere durch die starke und gleichmässige Punktirung von Kopf und Thorax weit verschieden. Das ebenfalls nicht unähnliche, aber immer blauschwarz gefärbte D. Burmeisteri ist viel feiner punktirt und weicht durch spitze Vorderecken des Thorax, sowie durch die Anwesenheit von Tarsen an den Vorderbeinem ab".

10. *Deltochilum (Calhyboma) verruciferum* Felsche, 1911

Figs. 78-79

D. verruciferum Felsche 1911 Deut. Ent. Zeitschr. p. 113; Gillet 1911, Junk's Col. Cat. Pars 38:36; Paulian 1939, Ann. Soc. Ent. Fr. 108:9, 14; Blackwelder 1944, U. S. A. Mus. Bull. 185:203.

Distribution: Bahia: Santo Antonio da Barra XII.910.
Alagoas: Delmiro IX-X (9 exs. and 5 in the coll. Campos Seabra).
Ceará: Fortaleza 1952 (2 exs.).
Rio Grande do Norte; Mossoró X.952 (Nascimento leg.).

Length 16-20 mm. Humeral width 10-12 mm.

Colour dark, with cupreous reflexes, or entirely cupreous.

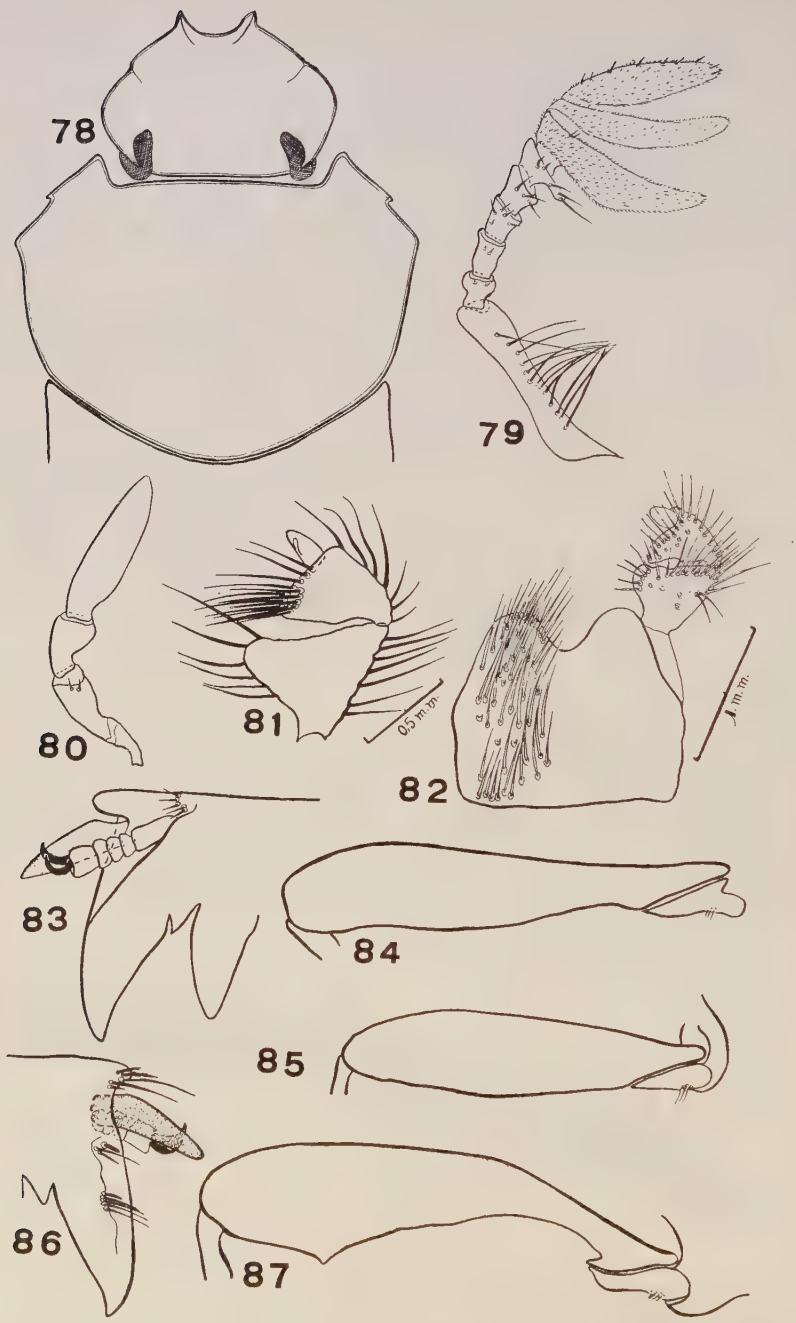
Male — Head with clypeus strongly punctuated except at center which is nearly smooth, with fine punctuation at sides between median clypeal teeth, these are strong, widely incised on external margins, gena not angulose in front, rounded on posterior margin, with genal suture manifest, superior part of eyes large; antenna with scape large, 2nd segment narrowed at base, 3rd elongate and widened apically, 4-5 campanuliform, 6 with small slender lamella, 7-9 with strong lamellae completely covered with fine and dense pile, all segments with fine hairs; mentum and mouth parts as in fig. 8.

Prothorax with pronotum strongly ocellated at sides and base, with small points at center and anterior margin, ocella intermingled with small shiny granules, median furrow scarcely visible and only posteriorly, lateral fovea large, anterior angles sharp, the median ones rounded with strong denticle situated between anterior and middle angles, posterior angles obsolete; proepisternum with strong ocella furnished with hairs, posterior part with ocella but with hairs only on external margins; prosternal process with strong points.

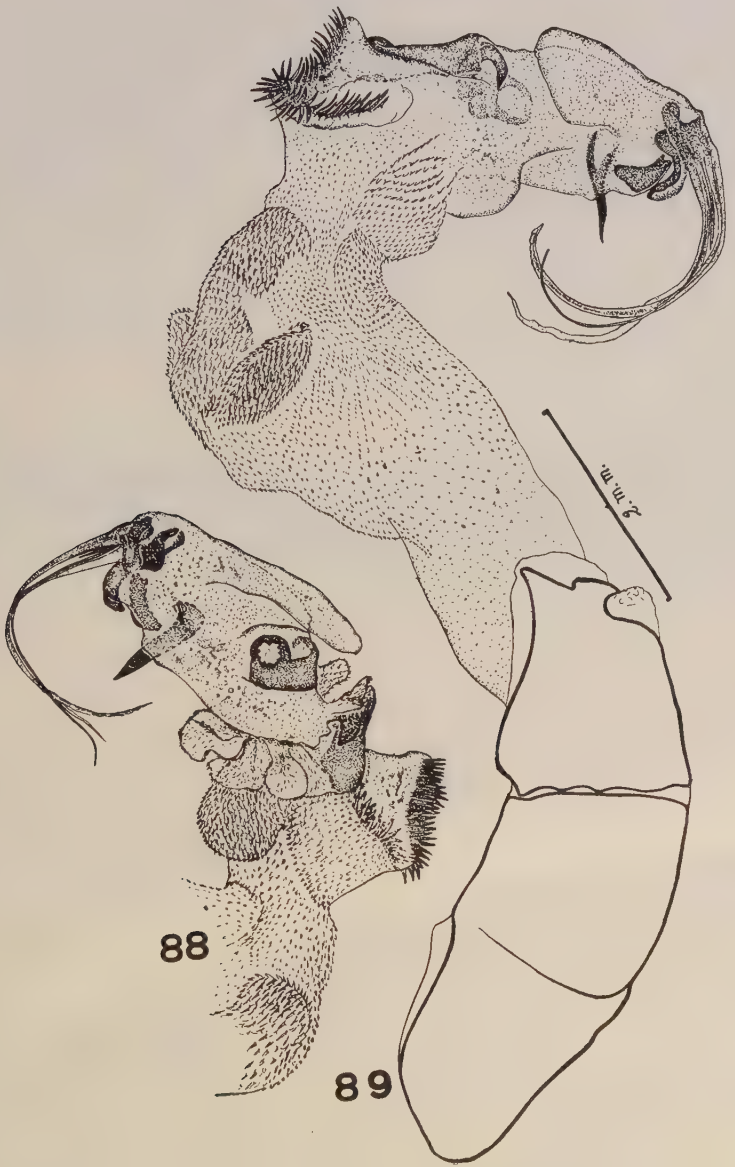
Mesothorax with central part of scutellum finely punctuated, pubescent on posterior part and smooth in front, with lateral depressions; mesosternum carinated at anterior part of central region and more strongly punctuated at sides; meso-metasternal suture straight and cariniform at central part; mesoepisternum large and strongly punctuated.

Metathorax with metasternum smooth at center, with anterior part depressed and with ocella and two large tubercles before depression, sides with large ocellar points, metaepisternum punctuated only at center.

Abdomen with segments strongly punctuated at sides and nearly smooth at center, only with rows of points on anterior margin of each segment and a few strong few points on 1st which is triangular, 2nd narrower than 3rd, 3-5 subequal, 6 narrow; pygidium suboval, carinated on all margins, angulose at center of base, slight-



Deltochilum (Calhyboma) verruciferum Felsche; 78 - Dorsal view of head and pronotum; 79 - Antenna; 80 - Maxillary palpi; 81 - Labial palpi (Internal view); 82 - Mentum and labial palpi; 83 - Ventral view of end of anterior tibia; 84 - Hind femur of ♀; 85 - Median femur of ♂; 86 - Dorsal view of apex of anterior tibia; 87 - Hind femur of ♂.



Deltochilum (Calhyboma) verruciferum Felsche; 88 - Detail of apex of male genitalia; 89 - Protruded male genitalia.

ly elevated at apex, with strong elongated ocellar points in all its surface.

Elytra with weak striae but with large foveiform points, interstriae with ocellar points intermingled with small and shiny granules, 7th with strong basal carina, 9th with weak but visible carina, 2, 3 and 4 with high and elongated tubercles on basal third; apical tubercles ou 3, 4, 5, 6 and 7; epipleura with points on full extension.

Anterior legs with coxa smooth on posterior region, punctuated and pubescent on the anterior; trochanteres punctuated and pubescent in front; femora with inferior side strongly punctuated, the superior smoother with points only on margins, anterior margin sulcated and punctuated, tibia narrow up to middle, where they widen, apical part with numerous hairs and with internal angles thickened; spur wide and short, tarsi small with curved claws.

Median legs with coxa finely sculptured on internal side and with large points on external side; trochanteres with strong tuft of hairs close to base; femora with inferior side punctuated and carinated at center, with spiniform process in front of carina, superior side with strong ocellar points, posterior margin furrowed, tibia short and curved; spurs strong, tarsi with 1st segment small, 2nd and 3rd subequal, 4th small, 5th elongated, all with numerous hairs; claws strong.

Posterior legs with coxa microsculptured in front and with numerous large ocella on posterior margin; trochanteres with split point, and with tuft of hairs at middle of posterior margin; femora pedunculate, very slender at base and thickened at apical part and with a strong curved tooth close to apex, inferior and superior sides with ocellar points; tibia very long and curved with tuft of hairs at apex; tarsi as in median legs and with strong curved claws.

FEMALE — Elytra without elongated tubercles on anterior basal third on interstriae, spurs of anterior tibiae slenderer, median femora not carinated on inferior side, posterior spurs not split, the points slender, femora pedunculated and without tooth on apical part of posterior margin; metasternum without tubercles on anterior part, or these when present rudimentary.

This species seems very close to *D. variolosum* Burm. from which it is distinguished by elytral interestriae and pronotum not rugose as well as by colour and sculpture of pronotum and elytra, the last having ocella intermingled with small shiny granules.

11. *Deltochilum (Calhyboma) tesselatum* Bat., 1870

Figs. 90-99

D. tesselatum Bates 1870 Tr. Ent. Soc. Lond. p. 175; Gillet, 1911, Junk's Col. Cat. Pars 38:36; Paulian 1939, Ann. Soc. Ent. Fr. 108:9 17, f. 7, 9, 12; Balthasar 1942, Erich Titschack Festschr. p. 345 Blackwelder 1944, U. S. Nat. Mus. Bull. 185:203.

D. t. arrowi Paulian l. c.p. 18; Gacharná 1951, Rev. Ac. Colomb. 8:222.

Distribution: Equador: Santa Inez (exs.); Archidona 1922 (Mus. Paris), Id. 1940; Rio Bamba 1874 (Mus. Strasbourg).
Colombia: Loc.? 1901 (Staudinger).
Perú: Lima.

Length 17-21 mm. Humeral width 10-12 mm.

Colour of dorsal part dark blue with silky reflexes, of ventral part blue or cupreous, or cupreous green.

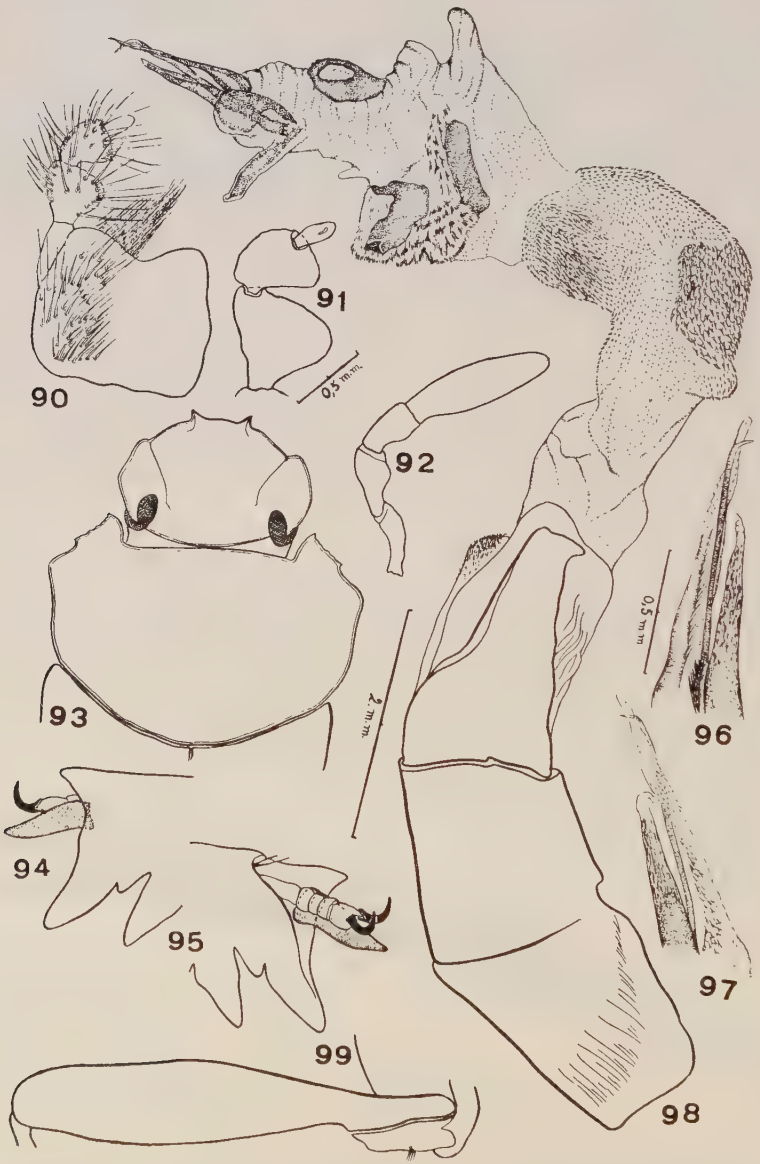
Male — Head with clypeus punctuated all over, except on anterior margin between the median teeth, these are short, robust and with the extremities turned outwards and strongly incised on external margins, gena angulose in front and rounded behind, with a very weak genal suture, superior part of eyes large; antenna with large scape, 2nd segment small but elongate, 3rd larger than second, 4th and 5th campanuliform, 6th with small slender lamellae, 7-9 large, lamelliform, covered with very short brown pile, all segments with small hairs; mentum and mouth parts as in fig. 90.

Prothorax with pronotum finely punctuated and rugose on disc, sides with punctuation slightly stronger, disc with a pronounced median furrow on posterior region, lateral fovea with small cariniform gibbosity in front, anterior angles obtuse and directed outwards, the median ones obtuse and slightly salient, lateral incision closer to median angles; proepisternum with strong points furnished with hairs, posterior part less punctuated, and smooth on central part, prosternal process punctuated.

Mesothorax with the disc of scutellum limited by two curved carinae, punctuated and pubescent behind and smooth anteriorly, sides sulcated; mesosternum with fine points at center, sides with anterior margin smooth, posterior one punctuated, meso-metasternal suture nearly straight at center; mesoepisternum with strong ocella.

Metathorax with the metasternum smooth at center, with very large fovea at the center of the posterior part and with the anterior part depressed and with isolated ocella, sides with sparse ocella, metaepisternum punctuated at center and smooth at margins.

Abdomen with nearly all segments punctuated at center, the 1st only on anterior part, 2nd very narrow, 3-5 gradually larger with a cariniform line on posterior margins, 6th wider than anterior



Deltochilum (Calhyboma) tesselatum Cast.; 90 - Mentum and labial palpi; 91 - Labial palpi (Internal view); 92 - Maxillary palpi; 93 - Dorsal view of head and pronotum; 94 - Dorsal view of apex of anterior tibia of ♀; 95 - Ventral view of same; 96 - Detail of apex of male genitalia; 97 - Another detail of same; 98 - Protruded male genitalia; 99 - Hind femur and trochanter ♂.

ones and more punctuated; pygidium triangular, entirely covered with sparse and elongated ocella, carinated on all margins, slightly elevated at tip, angulose and depressed at center of basal part.

Elytra with striae scarcely perceptible and only indicated by the brilliant and smooth plates between foveae, interstriae with small ocellar points and very small and sparse granules between them, 7th with strong basal carina, 9th without sign of keel, apical tubercle present at 3, 4, 5, 6 and 7; epipleura rugose and with few points.

Anterior legs with coxa nearly smooth on posterior part and with hairs on anterior, trochanteres scabrous and with hairs on posterior femora, with sparse ocella on inferior side, anterior margin with 2 denticles situated on basal third, and another on apical third, tibia with few hairs at apex; spur short, wide and robust; tarsi small with curved claws.

Median legs with microsculptured coxa; trochanteres slender and elongated; femora narrowed at base and apex with inferior side covered with widely scattered ocella and elevated at center in slightly pronounced keel, superior side smoother, posterior margin with 2 denticles situated on basal third, and another on apical equal in length; tarsi with 1st and 4th segments short, 2nd and 3rd elongated and subequal, 5th large, with strong curved claws.

Posterior legs with anterior part of coxa smooth, the posterior part strongly ocellated and with fine points on central part between trochanteres, these are thick and rounded apically; femora pedunculated and strongly narrowed with superior and inferior sides covered with sparse ocella, posterior margin sulcated and with a tooth very close to apex; tibia very long and slender, specially at base, apex internally projected in small angles, tarsi with the 1st segment small, 2-4 elongated and subequal, the 5th larger and cylindrical, with strong and curved claws.

Female — With clypeus more strongly punctuated and with fine points between median teeth anterior spurs slender and long, median femora without keel on inferior side, posterior trochanteres elongated and with a denticle before apex, posterior femora not pedunculated.

Paulian's variety *D. tesselatum arrowi* differs from the typic form by having the pronotum covered with fine and sparse punctuation on all its surface, by the punctuated mesosternum, by the base of pronotum clearly bisinuated and by the punctuation of posterior angles of prosternum less evident.

This species is distinct from *D. mexicanum* Burm. by the absence of elytral striae, which are only indicated by a row of smooth and brilliant plates interrupted by the foveae.

12. *Deltochilum (Calhyboma) mexicanum* Burm., 1848

Figs. 100-112

D. mexicanum Burmeister, 1848 d'Alton's Zeit. Zool. Zoot. Palaeont. 1:135; Gemminger & Harold 1868, Cat. Col. 3:996; Bates 1886, Biol. Centr. Amer. 2 (2):37; Gillet 1911, Junk's Colt. Cat. Pars 38:36; Paulian 1939, Ann. Soc. Ent. Fr. 108:9, 18, f. 9; Balthasar 1942, Erich Titschack Festschr. p. 345; Blackwelder 1944, U. S. Nat. Mus. Bull. 185:203.

D. burmeisteri Harold 1867, Col. Heft. 1: 76; 1880, Stett. Ent. Zeit. 41:171; Gemminger & Harold l. c. p. 995; Shipp 1897, Ent. Nachr. 23 (13):195.

Distribution: Costa Rica: loc.? XII.924 (3 exs. Nevermann leg.). IV.930 (Nevermann leg.), La Palma II.924)4 exs.).
Honduras: Loc.? 940 (♂).
Panamá: Chiriqui 1091.
Equador: Bucay VI.905 (Ohaus Leg.).
Bolivia: Loc.? 1901 (Staudinger); Tanampayo; Cochabamba, Chapare, Yungas del Palmar II.952 (♂ ♀); S. Cruz, Ichilo, Buenavista II.950 (♂ Martinez leg.).

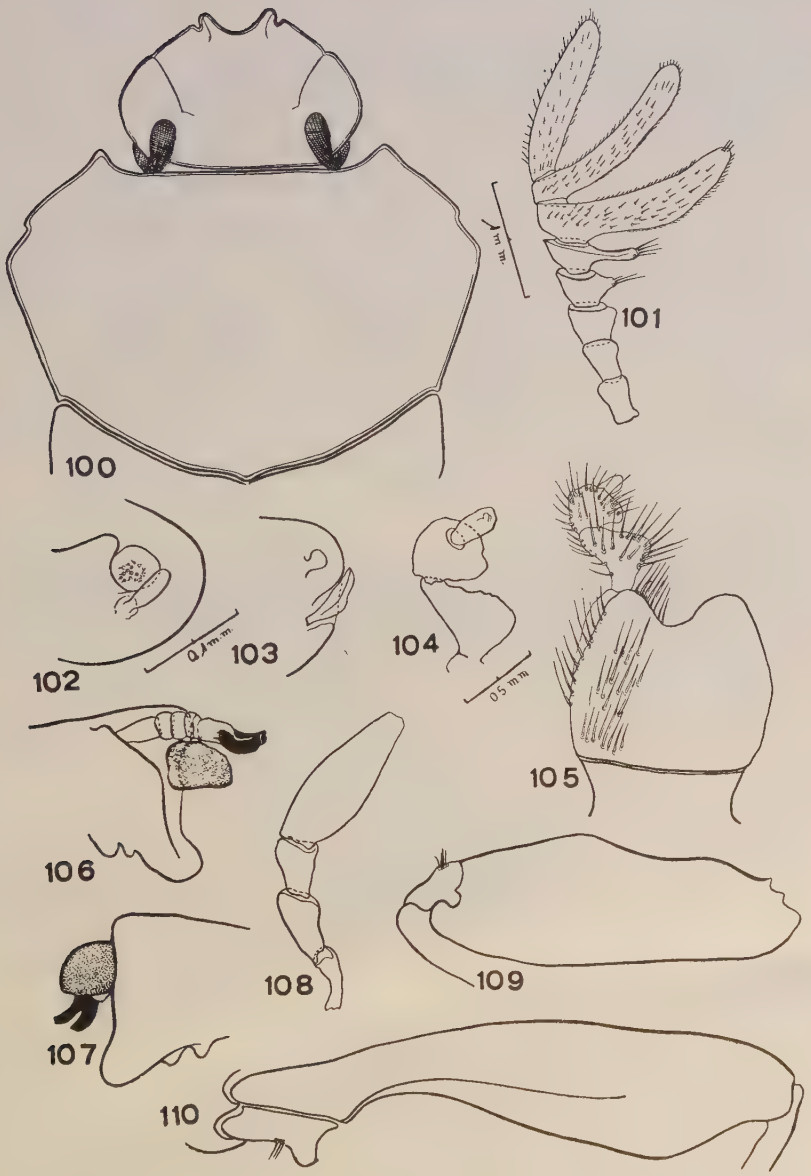
Length 19-24 mm. Humeral width 13-16 mm.

Colour black on very dark blue, mouth parts and antenna brown, lamella yellow.

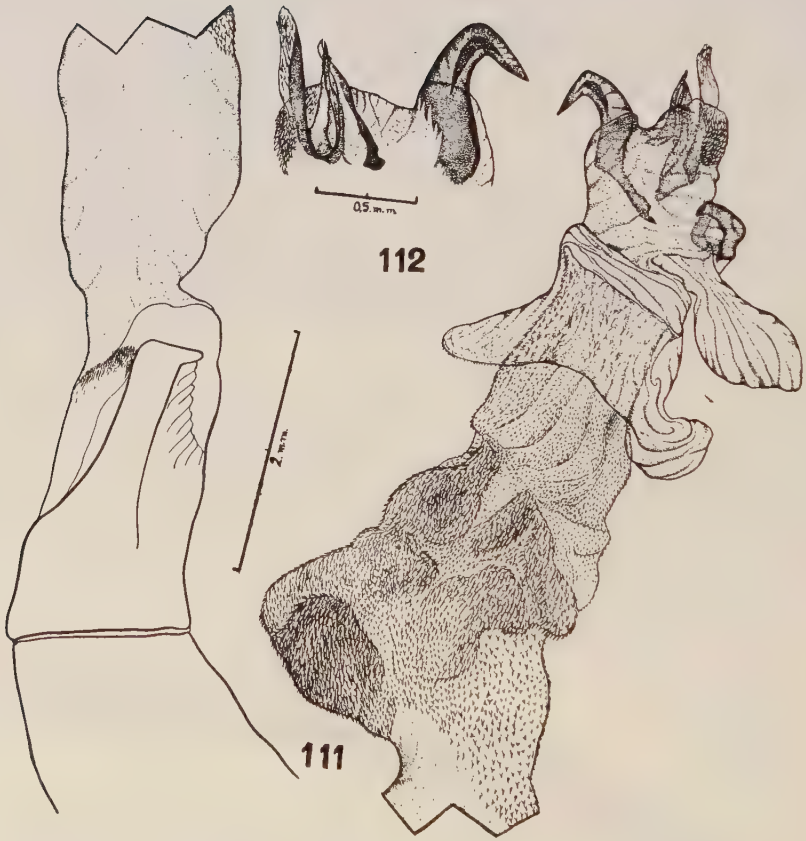
Male — Head finely puncutated all over, nearly smooth, however, between the clypeal teeth, the posterior margin with larger points; median teeth of clypeus short, strong and outwardly directed, on their external margins strongly incised, gena slightly sallient in front and completely rounded posteriorly, genal suture weak but manifest, superior part of eyes large; antenna with very large scape, 2nd article narrowed at base, 3th subequal to 2nd, 4-5th campanuliform, 6th forming small lamella, 7-9th produced in large lamella covered with dense pile, all segments with small isolated hairs; mentum and mouth parts as in fig. 105.

Prothorax with fine and dense punctuation on all surface of pronotum, a little stronger at anterior angles, on sides and basal part the points are intermingled with very small brilliant granules, disc of pronotum without median furrow, lateral fovea small and limited anteriorly by a small brilliant tubercle, anterior angles sharp, the median ones round and sallient with the lateral incision closer the median angles, posterior angles dentiform and directed backwards, posterior margin angulose at center, proepisternum with numerous and contiguous ocella, posterior part of prosternum with smaller and sparser ocella, prosternal process with small points.

Mesothorax with metasternum narrowed, depressed, and smoother at center, with sides covered with strong ocella; mesometasternal suture straight at central part; mesoepisternum large and with median ocella.



Deltochilum (Calhyboma) mexicanum Burm.; 100 - Dorsal view of head and pronotum; 101 - Antenna (without scape); 102 - Detail of sensorial process of labial palpi; 103 - Lateral view of same; 104 - Labial palpi (Internal view); 105 - Mentum and labial palpi; 106 - Ventral view of apex of male anterior tibia; 107 - Dorsal view of same; 108 - Maxillary palpi; 109 - Anterior femur of ♂; 110 - Hind trochanter and femur of ♂.



Deltochilum (Calhyboma) mexicanum Burm.; 111 - Protruded male genitalia; 112 - Detail of apical end of same.

Metathorax with metasternum smooth at center, or with microscopic granules, with strong depression on anterior part with weak longitudinal furrow, shallow but quite widened at posterior and, sides with numerous ocella and a carina parallel to median coxa; metaepisternum covered with ocella with exception of a narrow smooth belt on margins.

Abdomen with segments nearly smooth at center execpt the 1st and 6th, which are well punctuated, the remaining segments with only a row of points on anterior margins, sides with strong and dense ocella and with a fovea on some of the segments; pygidium densely covered with ocella, keeled on all margins, apex slightly elevated, basal part angulose at middle.

Elytra with very fine striae and with small and quite elongated fovea, lateral striae obsolete at basal region, interstriae covered with small points intermingled with small granules, which are strong and more numerous on lateral striae, 7th with strong basal carina, 2-3 projected in rhombous tubercles at basal third, 9th with vestige of carina at basal part, apical tubercles apparent on 3, 4, 5, 6, and 7, epipleura with points and granules as on elytra.

Anterior legs with coxa smooth on posterior part and pubescent anteriorly; trochanteres excavated and with hairs in front; femora with median and uniform ocella on inferior side, superior side smoother and with points and hairs principally on apical region, anterior margin strongly excavated and with a dentiform salience at basal region and a laminar expasion close to apex, tibia with a tuft of hairs on apex, spur short and wide, tarsi very small with 1st and 5th segments elongated and intermediate ones moniliform, claws strong.

Median legs with microsculptured coxa; trochanteres very slender and long with a denticle at base and a seta at middle; femora widened at center with inferior side protruded and weakly carinated, the superior side equally punctuated, spurs subequal, tarsi with 1st segment short and narrowed at base, 2-4 decreasing in length, 5th cylindrical and slightly larger than anterior, terminated with 2 robust and curved claws.

Posterior legs with microsculptured coxa on anterior margin, and with strong ocella on posterior, central part between trochanteres with fine points, trochanteres with strong tooth close to apex, smooth on basal portion and punctuated on apical region, with a seta behind denticle; femora strongly pedunculated at base and dilated at apex, with inferior side punctuated and superior side covered with large ocella, posterior margin expanded as dentiform lamina close to apex; tibia very long, crocked more or less in central par and a little thickened at apical region; spur robust; tarsi and claws as in median legs.

FEMALE — Elytra without gibbosities on anterior third of interstriae 2-3, anterior spurs more slender, median femora not carinated on inferior side, posterior trochanteres lacking large apical tooth, posterior femora not or only slightly pedunculated and tibia straighter and less crocked.

This species is easely separated from anterior one by the fine elytral striae and lack of smooth belt at proximity of striae; from all other species of this subgenus it is distinct by its backwardly projected dentiform posterior angles of pronotum.

In my last (Notas Sinonímicas, Dusenia 4:393, 1953) I stablished the synonymy of *Canthon plicatipennis* Bl. and *Paedhyboma aberrans* Har. These, however, is not the case, because Blanchard's type corresponds exactly with the description and original type locality (Patagonia), and it belongs to the genus *Scybalophagus* stablished by Dr. A. Martinez for those species of *Canthon* with transverse carinae on the posterior tibiae. In my opinion, *Paedhyboma* Kolbe cannot be distinguished from *Canthon*.

The exact bibliographical citation for these species should be as follows:

Canthon plicatipennis Blanch, 1843

Canthon plicatipennis Blanchard 1843, Voy. d'Orb. Col. p. 164; Berg. 1881, Stett. Ent. Zeit. 52:54, — 1881 Expl. Rio Negro Zool. p. 99; Felsche, 1910, Deut. Ent. Zeitschr. p. 339; Gillet 1911, Junk's Col. Cat. Pars 38:32; Balthasar 1939, Fol. Zool. Hydrob. 9:200.

C. fractipes Harold 1868, Berl. Ent. Zeitschr. 12:101.

Canthon aberrans (Har., 1868)

Deltochilum aberrans Harold 1868, Berl. Ent. Zeitsch. 12:8.

Paedhyboma aberrans Kolbe 1893, Stett. Ent. Zeit. 54:190; Paulian 1939, Ann. Soc. Ent. Fr. 108:21; Martinez 1947, Arthropoda 1:113.

Canthon bifurcatus Robinson 1948, Ent. News 59:37; Martinez 1951, Mis. Est. Pat. Reg. Argent. 22 n.º 80:23.

Canthon juanae Martinez 1949, Rev. Zoo. Ent. Argent. 14:176, fig. 1, — 1951, l. c. p. 23.

Canthon plicatipennis (nec Blanch.). F. Pereira 1953, Dusenia 4:393, fig. 1.

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We would like to knowledge my sincere appreciation for the help I have receveid during the elaboration of this paper, particularly to Dr. FREDERICO LANE for help in translation of the Portuguese manuscript; to Dr. G. FREY (Muenchen) and A. MARTINEZ (Buenos Aires) for the loan of pertinent material; to Lieutenent M. ALVARENGA (Rio de Janeiro) for his very generous gift to this Departamento of the single male specimen of *Deltochilum (Calhyboma) riehli* Har. in his collection.

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Rev. Brasil. Ent. 4:51-160 — 15-XII-1955 - São Paulo

BRASILIAN THYSANOPTERA. VI. (1)

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This series of papers was begun in August, 1949, following the writer's return from a collecting trip to Brasil. The first two parts were published in REVISTA DE ENTOMOLOGIA (Rio de Janeiro), and contained full descriptions and many figures of a number of species. The discontinuance of that publication, and a second trip to Brasil in 1951, combined with unsuccessful attempts to find a journal that was able to take illustrated papers of the size contemplated, or to take shorter papers at sufficiently frequent intervals, led to delay in the preparation of succeeding parts. Finally, fully underwriting the cost of publication, the writer placed Parts III-V in the PROCEEDINGS OF THE BIOLOGICAL SOCIETY OF WASHINGTON. This, however, necessitated the omission of the numerous completed illustrations and the abridgment of the descriptions — just as had to be done, most unfortunately, to secure publication of several papers in past years. Now, with outlets for publication no more numerous, especially if papers are moderately large and are illustrated, the present contribution must end the series. The cost of the engravings for the figures is to be borne by Cornell University, through its Committee on Faculty Research Grants, while that for printing will fall, at least in large part, upon the writer.

Necessarily, the genera and species could not be treated in systematic order, even within a single paper. It has therefore appeared advisable to add an Index at the end of this paper. The number of new Brasilian species listed exceeds the total number of all species which had been recorded from the entire continent, including Panamá and Trinidad, at the conclusion in 1933 of Moulton's series of papers entitled, "The Thynasoptera of South America".

For the sake of clarity, it may be well to invite attention to several details, two of which have been mentioned in earlier publica-

tions: (1) The methods employed in securing measurements of the total length of the body and of the antennae, and in making drawings, was discussed in Rev. Ent., 11 (1-2): 540-543. (2) The method used in measuring structures not in a horizontal plane was described in Proc. Biol. Soc. Washington, 67:18, paragraph 4. (3) The length of the head is taken to be its actual length, rather than part of its length. In all of the writer's papers it has been measured from its base to its apex between the antennae, along the dorsal surface, rather than from its base merely to the front margin of the eyes. The latter method is that used by most European students, and one to which there can be no real objection (other than terminological) if the measurement of the remainder of the head is also given. (4) The term BRACHYPTEROUS, following Uzel and nearly all later workers, has been used for the short-winged form, carefully distinguished from the APTEROUS form and from a condition which Bagnall termed MICROPTEROUS — a form in which the wings, though fringed to some extent, are nevertheless shorter than in the normal long-winged (MACROPTEROUS) form and doubtless non-functional. (5) The terms TERGUM, STERNUM, TERGITE, and STERNITE are deliberately employed in the sense in which they are defined and used by Imms, Comstock, Snodgrass, and other morphologists.

These papers began with a dedication to Dr. Thomaz Borgmeier, O.F.M., an it is appropriate at their conclusion to reiterate my indebtedness, high regard, and friendship, and also, in some of the early pages of this paper, to describe another species in his honor.

Genus *ELAPHROTHRIPS* Buffa, 1908

Variation, heterogony, and descriptions unaccompanied by measurements all conspire to make the New World representatives of this genus very difficult to identify. Differences in the quality or quantity of the food available to the developing young, or perhaps genetic differences which allow some of them to utilize food better than others, result in tremendous variation in the size of males; and the capacity of certain regions to grow disproportionately larger when food supplies are favorable results in many striking examples of heterogony which interpose a further obstacle to proper identification.

Perhaps the most striking heterogonic character is the sickle-shaped large seta developed in the males of some species, but never in certain others, near the tip of the upper surface of the fore

(1) Received for publication May 20, 1955.

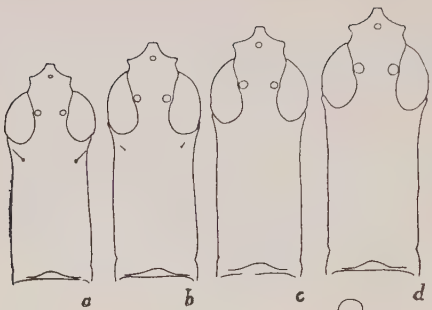
femora. Buffa used this character for the separation of his simultaneously-described genus *Dicaiothrips*. Few specimens were known to him; but in 1927 the writer, with much larger series avaialable, noted that the smaller and more slender-legged males have a weak, straight seta in the place of the large curved one which is so conspicuous in those with enlarged femora, and, therefore, he synonymized *Dicaiothrips* with *Elaphrothrips*. Fig. 145 shows this character in a series of four specimens of *Elaphrothrips tuberculatus* (Hood), ranging from smallest to largest and all found living together, with numerous nymphs and females. Both the seta and the fore legs are heterogonic, as can easily be demonstrated by plotting their sizes against body size on a double logarithmic grid.

In those species of the genus which lack the seta mentioned, the fore legs appear always to be heterogonic. Fig. 140 shows roughly the structure of the fore legs in a series of *E. laevicollis* (Bagnall), ranging from a very small male to a very large one, all collected from the same felled tree. It will be noted that the femur, tibia, tarsus, and tarsal tooth are all disproportionately large in large individuals.

Still further heterogony is shown in *E. laevicollis,* and other species as well, in the degree of development of the seventh and eighth abdominal segments. In small specimens, these segments are in the neighborhood of 0.6 as long as the head and not more than 1.7 times as long as their greatest width, as can be seen by comparing Figs. 141a, 142a, and 138a, which represent parts of the same individual, drawn to the same scale. In large individuals, however, these segments are nearly equal in lenght to the head and are more than twice as long as wide (compare Figs. 141d, 142d, and 138d).

The head (Fig. 138) and tube (Fig. 143), like the third and fourth antennal segments (Fig. 139), increase in size, of course, throughout the series from small to large, but not heterogonically. They are thus relatively stable in terms of body size. For example, the tube of specimen *a* is longer than the eighth abdominal segment, while that of specimen *d* is appreciably shorter than the eighth, because the tube is not heterogonic and the eighth abdominal segment is. Yet, interestingly enough, the tube changes little in basal width while increasing in length, with the result that whereas it is about four times as long as wide in small individuals, it is about five times as long as wide in large ones.

Another interesting feature is the *negative heterogony* exhibited by the postocular setae. They are present only in the very smallest males and disappear, or become indistinguishable from several other minute setae in their general area, long before really large individuals are encountered in the series. This is the only



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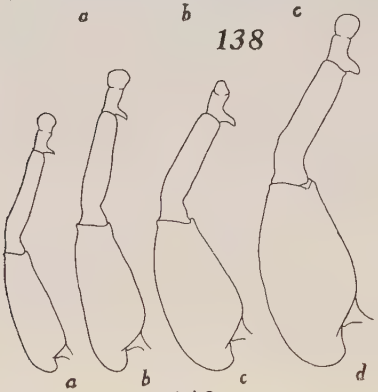

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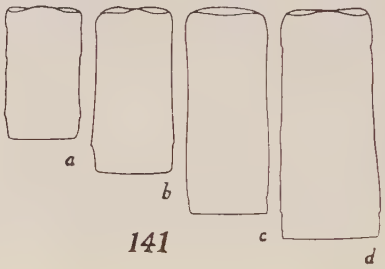

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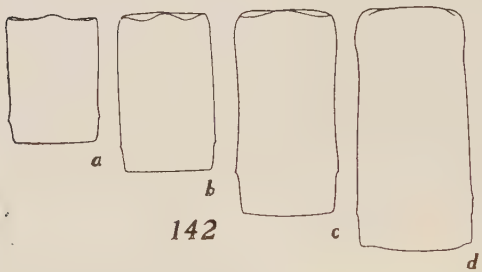

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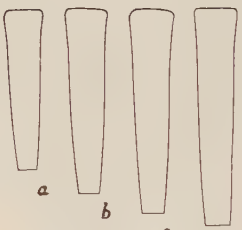

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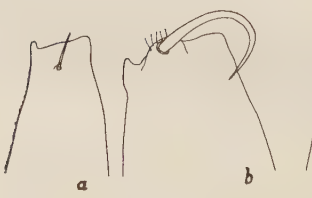

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145

Heterogony and Variation in *Elaphrothrips*

138-143 — *Elaphrothrips laevicollis* (Bagnall); a series of four ♂'s (*a, b, c, and d*), all taken together. — 138: Head (not heterogonic), showing rare negative heterogony of postocular setae; x 37. — 139: Segments III-IV of antennae in comparison with VI-VIII; not heterogonic; the last group of segments never attains expected size in large individuals, notwithstanding a gradual increase in length of more basal segments; x 63. — 140: Left fore legs, showing positive heterogony throughout; x 28. — 141: Segment VIII of abdomen (heterogonic), the segment lengthening markedly with any increase in body size; x 37. — 142: Segment VII of abdomen (heterogonic), showing a similar change in proportions; x 37. — 143: Tube (segment X of abdomen), not heterogonic, showing an increase in length with little increase in width; x 37.

144 - *E. unicolor* Moulton; tips of right fore femora of (*a*) a very small ♂, and (*b*) of a very large one; heterogonic; x. 97; 145 - *E. tuberculatus* (Hood); tips of right fore femora of a progressive series of four ♂'s, all taken together, showing the same heterogonic development illustrated in the preceding figure; x 97.

example of negative heterogony known to me in the Thysanoptera.

No less interesting is the relative constancy of the collective lenght of the three terminal segments of the antennae. These segments are somewhat smaller in large males than they "should" be — just as though food coming to them in the course of their development had been appropriated by other, more rapidly developing parts before it could reach the tips of the antennae: indeed, this is possibly a true description of what actually takes place.

From what has been said, one will appreciate the impossibility of dealing satisfactorily with about nine of the Neotropical species described by Bagnall — mostly mounted on cards, I believe, and two of them with incomplete antennae — when especial reliance was placed by him on the presence or absence of postocular setae, the comparative lengths of the seventh and eighth abdominal segments and the tube, and the length of the three terminal antennal segments in relation to that of the fourth. Furthermore it is not possible in carded specimens to determine how far an abdominal segment may be telescoped within the preceding one, and it is my belief that Bagnall's measurements of these parts are open to serious question.

Elaphrothrips unicolor Moulton

(Fig. 144)

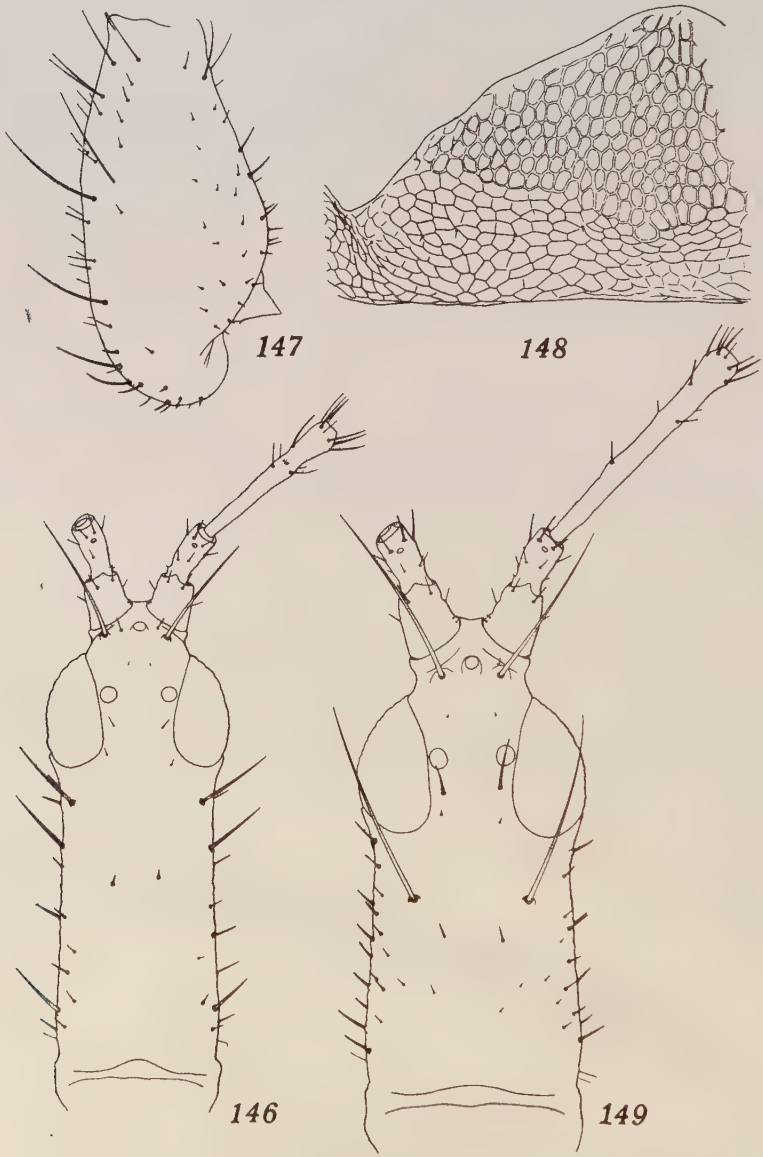
Described from "Brazil", in 1933, from five females, this species has not been referred to in later literature. Moulton's holotype has been studied and compared with the following material in my collection:

Brasil: Boracéia, Munic. de Salesópolis, S. P., June 7 and 8, 1948, J.D.H., 2 ♀'s; Ilha da Gipoia (Angra dos Reis), R. J., May 25, 1948, J.D.H., 1 ♀, 2 ♂'s; Nova Teutônia, S.C., February, 1948, to December, 1951, Fritz Plaumann, 28 ♀'s and 4 ♂'s. All specimens were taken from dead branches and leaves.

Elaphrothrips tuberculatus (Hood). 1908

(Fig. 145)

This species is not known from Brasil, but was referred to above in the discussion of heterogonic growth, under *Elaphrothrips*. I have material from Illinois, Arkansas, Texas, Florida, North Carolina, Virginia, District of Columbia, Maryland, and New York, where it is often abundant in hanging dead leaves of various species of Oak (*Quercus*).



Elaphrothrips

146 - *E. costalimai*, sp. nov; head and bases of antennae; ♂, paratype; x 81; 147 - Same, left fore femur; ♂, paratype; x. 81; 148 - *E. macateei*, sp. nov.; part of median tergite of segment I of abdomen; ♀, paratype; x. 159; 149 - Same, head and bases of antennae; ♀, paratype; x 81.

Elaphrothrips costalimai, sp. nov.
(Figs. 146, 147)

Male (macropterous). — Length about 6.2 mm. (fully distended, about 7.6 mm.). Color black or nearly so, with tarsi, articulations of legs, and apices of all tibiae blackish brown; antennal segment III pale yellow in basal three-fourths, IV dark gray-brown in basal one-half, remainder of antennae nearly black, but with portions of apex of II yellow, V sometimes distinguishably paler in pedicel, the basal portion of III usually lightly clouded; wings of both pairs very lightly washed with brownish and with a dark median streak or vein (that of fore wings broader) extending beyond middle of wing, the fore pair darkened in anal lobe and in the area of the subbasal setae and with a second dark streak close to costal margim in basal fourth; major setae dark.

Head (Fig. 146) about 2.6 times as long as greatest width, which is across eyes, and 2.9 times the greatest width near base, distinctly produced beyond the eyes, the process about 0.32 as long as greatest width of head near base, about one-half as long as its own greatest width, with sides concave; cheeks flaring as usual to the eyes, their length in front of basal collar about 2.6 times the length of eyes; genal setae pointed or nearly so, black, with briefly pale tips; postocular and interocellar setae long, pointed, black excepting for their pale extreme tips. Eyes as long ventrally as dorsally, those of holotype measuring as follows in μ: dorsal length 185, greatest dorsal width 97, least dorsal interval 116, ventral length 183, greatest ventral width 102, least ventral interval 106. Ocelli of posterior pair with their hind margin slightly in advance of middle of eyes, their diameter 27 μ, interval 75, distance from median ocellus 105; median ocellus distinctly smaller (20 μ), with its posterior margin 36-40 μ in advance of anterior margin of eyes. Antennae normal, slender, more than 1.5 times the length of head, segment III (Fig. 146) about 273 μ long and 1.3 times the length of IV; sense-cones slender, short (the outer one on III about 60 μ), disposed as follows on the inner (outer) surfaces of segments: III 1 (1), IV 1 (2) + 1 ventral, V 1 (1 + 1), VI 1 (0 + 1), VIII 1 dorsal. Mouth-cone short, broadly rounded, somewhat surpassing middle of prosternum.

Prothorax along median line of pronotum distinctly more than one-half the length of head and (inclusive of coxae and coxal tubercles) less than twice as wide as long, epimeron not fused with notum, surface nearly smooth; setae nearly black, the three posterior pairs with pale rounded tips, holotype with antero-marginal pair 30 μ, antero-angular 40, midlateral 34, epimeral 169, postero-marginal 81, coxal 155, the last arising from low tubercles. Fore

LEGS normal; fore femora (Fig. 147) with intermixed large and small setae, all of which are pointed and nearly black, the larger ones with pale tips; fore tarsi toothed. WINGS of fore pair with about 48 accessory setae on posterior margin.

ABDOMEN normal, broadest at segment II; median tergite of I polygonally reticulate throughout, with little differentiation into two regions (more like Fig. 152 than Fig. 148); setae on segment IX, and the terminal ones, long, dark, and pointed, I on IX about 686 μ, II about 693, III about 560, terminal setae about 428. TUBE scarcely two-thirds as long as head, with sides tapering almost evenly to tip, about 3.5 times as long as greatest basal width.

MEASUREMENTS of male (holotype), in mm.: Length about 6.22 (fully distended, 7.59). Head, total length 0.801, width across eyes 0.309, least width just behind eyes 0.255, greatest width across cheeks (near base) 0.276, least width in front of basal collar 0.265, width across basal collar 0.281, greatest width at posterior angles of eyes 0.294; cephalic process, length 0.090, width at base of antennae 0.168, width at anterior margin of eyes 0.175; postocular setae, length 0.144, interval 0.211, distance from eyes 0.062; interocellar setae, length 0.225, interval 0.100; anterior genal setae, length 0.123; mouth-cone, length beyond posterior dorsal margin of head 0.210; prothorax, median length of pronotum 0.371, width across coxae and coxal tubercles 0.665; mesothorax, width across anterior angles 0.735, greatest width 0.742; metathorax, greatest width 0.729; fore wings, length 2.32; abdomen, greatest width (at segment II) 0.661; VII, length 0.496, VIII 0.491, IX 0.260; tube (X, only), length 0.518, greatest subasal width 0.150, least apical width 0.077.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	100	110	273	209	193	163(1)	94	90
Width (μ):	80	50	47	53	45	34	31	20

Total length of antenna, 1.23 mm.

FEMALE (macropterous). — Size, color, and general structure much as in male, but with the head relatively shorter and broader, the postocular, interocellar, and abdminal setae longer, and the tube longer in relation to the head and 2.9 times as long as greatest width; anterior genal setae very short; midlateral, epimeral, and postero-marginal setae of prothorax long; fore femora with an evident low tubercle at apical third of inner lower surface (in the ususal position), this crossed by several elevated lines of sculpture which are usually aciculate in some degree; pronotum with a pair of small foveae lying in anterior third of lateral fourths, the-

(1) Measured to tip of ventral prolongation.

se foveae divided into several small reticles and often with one or two small foveae (very indistinct) behind them.

Measurements of female (allotype), in mm.: Length about 5.8 (distended, 7.06). Head, total length 0.707, greatest width across eyes 0.308, least width just behind eyes 0.262, greatest width across cheeks (near base) 0.290, least width in front of basal collar 0.274, width across basal collar 0.284, greatest width at posterior angles of eyes 0.291; cephalic process, length 0.087, width at base of antennae 0.157, width at anterior margin of eyes 0.171; eyes, dorsal length 0.181, greatest dorsal width 0.099, least dorsal interval 0.110, ventral length 0.174, greatest ventral width 0.098, least ventral interval 0.112; median ocellus, diameter 0.021; posterior ocelli, diameter 0.031, interval 0.070, distance from median ocellus 0.100; postocular setae, length 0.196, interval 0.156, distance from eyes 0.077; interocellar setae, length 0.246, interval 0.098; anterior genal setae, length 0.050; mouth-cone, length beyond posterior dorsal margin of head 0.242; prothorax, median length of pronotum 0.319, width across coxae (including tubercles) 0.662; antero-marginal setae, length 0.035, antero-angulars 0.030, midlaterals 0.104, epimerals 0.210, postero-marginals 0.252, coxals 0.115; mesothorax, width across anterior angles 0.763, greatest width 0.784; metathorax, greatest width 0.773; fore wings, length 2.32; abdomen, greatest width (at segment II) 0.851; tube X, only), length 0.584, greatest subbasal width 0.200, least apical width 0.080; segment IX, seta I 0.777, II 0.770, III 0.644; terminal setae 0.476.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	87	106	252	193	171	149(2)	92	79
Width (μ):	76	50	47	50	46	37	33	20

Total length of antenna, 1.129 mm.

Brasil: Jacarepaguá, D. F., May 13 — June 24, 1948 (holotype and allotype taken on latter date), J. D. H. and Dr. Thomaz Borgmeier, 13 ♂♂ (including holotype) and 16 ♀♀ (including allotype), taken almost wholly from dead, hanging leaves of *Dahlia*. The type series has been restricted to an undoubtedly homogeneous population at the type locality, though I have seen thousands of specimens and have made slides of nearly four hundred.

The species is dedicated to Dr. Angelo da Costa Lima, the famous Brasilian entomologist who, like W. S. Blatchley in the United States, has devoted much of his energy to the task of con-

(2) Measured to tip of ventral prolongation.

solidating our taxonomic gains in entomology by writing handy manuals of insects of various orders — the proper objective, it seems to me, of all work in systematics. For many years I have enjoyed and profited by his correspondence, his help, and his personal friendship.

The proportionate length and width of the head, the length of the third antennal segment in comparison with that of the fourth, the antennal coloration, the presence of postocular setae in even the largest males, the large size, and the short cephalic process, all place this species, in my manuscript keys, into association with the Mexican species *E. schultzei* Priesner — a species known from the female sex, only, and unrepresented in the material before me. The two can scarcely be confused with each other, however, because in *schultzei* the major cephalic and prothoracic setae are yellowish, instead of black; the antero-angular prothoracic setae are about 100 μ long, instead of 30; the tube is strongly narrowed in apical third, rather than almost perfectly straight; and the fore tarsi are armed with a small, forwardly-directed tooth.

Elaphrothrips macateei, sp. nov.
(Figs. 148, 149)

Female (macropterous). — Length about 7.4 mm. (fully distended, 9.2 mm.). Color black or nearly so, with tarsi, articulations of legs, and apices of all tibiae blackish brown; antennal segment III yellow at extreme base, only, nearly black in apical sixth, the intermediate portion brown; IV-VIII nearly black; wings of both pairs very lightly washed with brownish and with a dark median streak or vein (that of fore wings broader) extending beyond middle of wing, the fore pair darkened in scale and in front of and behind the three subbasal setae; these last, and the major setae on head and abdominal segment IX, dark brown, with pale pointed tips, the major prothoracic setae and those at the posterior angles of the intermediate abdominal segment yellow or yellowish.

Head (Fig. 149) 2.14 (2.23) [3] times as long as greatest width, which is across eyes and 2.25 (2.3) times the greatest width near base, markedly produced beyond the eyes, the process 0.36 (0.35) as long as greatest width of head near base, about 0.65 (0.64) as long as its own greatest width, with sides deeply concave; cheeks flaring as usual to the eyes, their length in front of basal collar a little more than twice the length of eyes; all genal setae with pointed tips; postocular and interocellar setae long and pointed. Eyes longer but narrower dorsally than ventrally, those of holotype mea-

(3) In this description, proportions or measurements of the paratype often follow (in parentheses) those of the holotype.

suring as follows in μ: dorsal length 225, greatest dorsal width 120, least dorsal interval 140, ventral length 211, greatest ventral width 134, least ventral interval 112. Ocelli of posterior pair with their hind margins opposite middle of eyes, their diameter 36 μ, interval 81, distance from median ocellus 135; median ocellus distinctly smaller (22 μ), with its posterior margin about 43 μ in advance of anterior margin of eyes. Antennae slender, approximately 1.8 times the length of head, of normal structure; segment III (Fig. 149) 427 (431) μ long, very slender, 1.8 times the length of IV; sense-cones slender, short (the outer one on III about 56 μ), disposed as follows on the inner (outer) surfaces of segments: III 1 (1), IV 1 (2) + 1 ventral, V 1 (1 + 1), VI 1 (0 + 1), VII 1 dorsal. Mouth-cone short, broadly rounded, somewhat surpassing middle of prosternum.

Prothorax along median line of pronotum more than one-half as long as head and (inclusive of coxae and coxal tubercle) less than twice as wide as long, epimeron not fused with notum, surface lightly sculptured; anterior angles with a pair of granulate areas which are lightly sclerotized and sub-crescentic in form; setae measuring as follows in holotype: antero-marginal 31 μ, antero-angular 53, midlateral 116, epimeral 252, postero-marginal 294, coxal 140, the last three pairs arising from low tubercles, all or most with rounded tips. Fore legs normal; fore femora without tubercle on inner surface; fore tarsi not toothed. Wings of fore pair with about 65 accessory setae on posterior margin.

Abdomen normal, broadest at segment II; median tergite of I (Fig. 148) with two kinds of polygonal reticulation, that at sides and along posterior margin largely formed of clear sharp lines, that of a subtriangular median anterior portion formed by reticles which are longitudinally elongated and whose bounding lines are much less sharp and clear; setae on segment IX, and the terminal setae, long and pointed, I on IX about 812 μ, II about 819, III about 672, terminal setae about 672. Tube about 1.16 times as long as head, with sides tapering almost evenly to tip, more than nine times as long as greatest basal width.

Measurements of female (holotype), in mm.: Length about 7.41 (fully distended, 9.23). Head, total length 0.812, greatest width across eyes 0.379, least width just behind eyes 0.325, greatest width across cheeks (near base) 0.361, least width in front of basal collar 0.347, width across basal collar 0.364, greatest width at posterior angles of eyes 0.370; cephalic process, length 0.130, width at base of antennae 0.199, width at anterior margin of eyes 0.206; postocular setae, length 0.356 (0.280), interval 0.183, distance from eyes 0.112; interocellar setae, length 0.280 (0.364), interval 0.091; anterior genal setae, length 0.047; mouth-cone,

length beyond posterior dorsal margin of head 0.280; prothorax, median length of pronotum 0.451, width (inclusive of coxae) 0.854; mesothorax, width across anterior angles 1.07, greatest width 1.12; metathorax, greatest width 1.11; fore wings, length 2.84; abdomen, greatest width (at segment II) 1.06; tube (X, only), length 0.938, greatest subbasal width 0.235 least apical width 0.098.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	123	123	427	235	204	163(4)	101	96
Width (μ):	100	60	60	63	55	43	36	24

Total length of antenna, 1.472 mm.

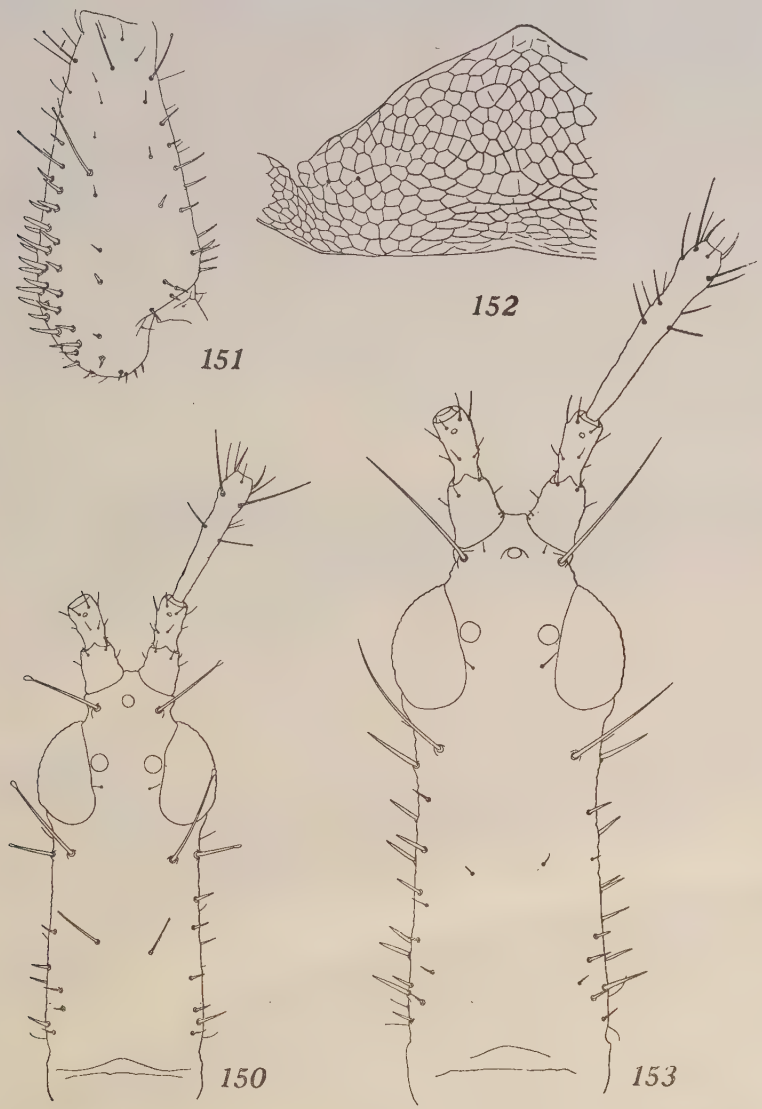
BRASIL: Belém, Pará, July 27, 1951, J.D.H., 2 ♀♀ (holotype and paratype), from a dead branch of an unidentifiable tree.

This large species is a member of the *laevicollis* group (in which I suspect that there is some synonymy), but may be distinguished readily from its allies by the dark antennae, the long third antennal segment, and the presence of long postocular setae. It is named after my good friend, Waldo L. McAtee, formely Technical Adviser of the U. S. Fish and Wildlife Service, an ardent field man who collected a great many new Thysanoptera during the period when we were associated in the old U. S. Biological Survey, in Washington. The incorporation of an "a" into the specific name, resulting in *macateei* instead of *mcateei*, is in accordance with the International Rules of Zoological Nomenclature.

Elaphrothrips borgmeieri, sp. nov.
(Figs. 150-152)

MALE (macropterous). — Length about 5.3 mm. (fully distended, about 6.6 mm.). COLOR black or nearly so, with tarsi, articulations of legs, and apices of all tibiae blackish brown; antennae nearly black, but with segment II brown apically, III very pale yellow (nearly white!) in basal two-thirds, IV-VIII nearly black, or IV somewhat paler just beyond extreme base; wings of both pairs very lightly washed with brownish and with a dark median streak or vein (that of fore wings broader) extending beyond middle of wing, the fore pair darkened in anal area and behind the subbasal setae, and with a second dark streak close to costal margin in about basal eighth, these dark areas more or less connected, but always with the area of the subbasal setae pale; major setae on head, thorax, legs, wings, abdominal segment IX, and the upper series on I-IV, dark blackish brown, but pale at extreme tip, the lateral pairs on III-VIII nearly colorless, terminal setae dark basally but fading to nearly colorless in apical three-fourths or more.

(4) Measured to tip of ventral prolongation.



Elaphrothrips

150 - *E. borgmeieri*, sp. nov.; head and bases of antennae; ♂, paratype; x 81; 151 - Same, left fore femur; ♂, paratype; x. 81; 152 - Same, part of median tergite of segment I of abdomen; ♂, paratype; x 159; 153 - *E snodgrassi*, sp. nov.; head and bases of antennae; ♂, paratype; x 81.

Head (Fig. 150) fully 2.2 times as long as greatest width, which is across eyes, and about 2.6 times the greatest width near base, distinctly produced beyond the eyes, the process about 0.32 as long as greatest width of head near base, about one-half as long as its own greatest width, with sides concave; cheeks flaring as usual to the eyes, their length in front of basal collar approximately 2.4 times the length of eyes; anterior genal seta briefly pale at tip and dilated, about 77 μ long, other genal setae dark and pointed; postocular and interocellar setae moderately long, their tips pale and distinctly dilated. Eyes somewhat longer ventrally than dorsally, those of holotype measuring as follows in μ: dorsal length 167, greatest dorsal width 100, least dorsal interval 105. Ocelli of posterior pair with their hind margins on a line with middle of eyes, their diameter 31 μ, interval 66, distance from median ocellus 94; median ocellus distinctly smaller (21 μ), with its posterior margin about 27 μ in advance of anterior margin of eyes. Antennae slender, a trifle more than 1.6 times the length of head; segment III (Fig. 150) about 239 μ long and about 1.2 times the length of IV, with prominent outstanding setae near tip, the large one on inner apical surface arising basally to the smaller one on exact profile of that surface; sense-cones slender, short (the outer on III about 50 μ), disposed as follows on inner (outer) surfaces of segments: III 1 (1), IV 1 (2) + 1 ventral, V 1 (1 +1), VI 1 (0 + 1), VII 1 dorsal. Mouth-cone short, broadly rounded, somewhat surpassing middle of prosternum.

Prothorax along median line of pronotum distinctly less than one-half the length of head and (inclusive of coxae and coxal tubercles) less than twice as wide as long, epimeron not fused with notum, surface nearly smooth, setae measuring as follows in holotype: antero-marginals 32 μ, antero-angulars 55, midlaterals 51, epimerals 122, postero-marginals 108, coxals 112, these last arising from low tubercles, all with pale rounded tips. Fore legs normal; fore femora (Fig. 151) with numerous stout dark setae, not intermixed with longer ones, along basal half of outer surface, the several long setae in apical half with pale dilated tips; fore tarsi with the usual tooth. Wings of fore pair with about 40 accessory hairs on posterior margin.

Abdomen normal, broadest at segment II; median tergite of I (Fig. 152) polygonally reticulate throughout, with no differentiation into two regions; setae on IX, and the terminal ones, with finely drawn-out pointed tips, I on IX about 693 μ, II about 749, III about 686. *Tube* (segment X, only) about 0.9 the length of head, with sides tapering almost evenly to tip, less than four times as long as greatest subbasal width.

Measurements of male (holotype), in mm.: Length about 5.28 (distended, 6.59). Head, length 0.679, greatest width across eyes 0.304, least width just behind eyes 0.239, greatest width across cheeks (near base) 0.263, least width near base 0.251, width across basal collar 0.262, greatest width at posterior angles of eyes 0.267; cephalic process, length 0.083, width at base of antennae 0.152, width at anterior margin of eyes 0.160; postocular setae, length 0.168, interval 0.165, distance from eyes 0.057; interocellar setae, length 0.150, interval 0.096; mouth-cone, length beyond posterior dorsal margin of head 0.189. Prothorax, median length of pronotum 0.284, width (inclusive of coxae) 0.651; mesothorax, width across anterior angles 0.657, greatest width 0.700; metathorax, greatest width 0.672; fore wings, length 2.07. Abdomen, greatest width (at segment II) 0.616; segment VII, length 0.431, VIII 0.406, IX 0.238; tube (X, only), length 0.595, greatest subbasal width 0.154, least apical width 0.074; terminal setae 0.525.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	91	93	239	199	161	141 (5)	84	83
Width (μ):	71	47	51	45	44	34	29	20

Total length of antenna, 1.094 mm.

Female (macropterous). — Size, color, and general structure much as in male; postocular, interocellar, and abdominal setae longer; setae on third antennal segment not outstanding; postocular and interocellar setae, and the longer fore femoral setae, blunt but not dilated; anterior genal setae very short; midlateral, epimeral, and postero-marginal prothoracic setae much longer; fore femora without tubercle on inner lower surface and without the stout, closely-grouped setae in basal half of outer surface; pronotum with a pair of very obscure small foveae in anterior third of lateral fourths; tube stout, usually about three times as long as greatest width.

Measurements of female (allotype), in mm.: Length about 4.62 (distended, 5.63). Head, length 0.623, greatest width across eyes 0.291, least width just behind eyes 0.252, greatest width across cheeks (near base) 0.283, least width near base 0.266, width across basal collar 0.279, greatest width at posterior angles of eyes 0.273; cephalic process, length 0.081, width at base of antennae 0.148, width at anterior margin of eyes 0.160; eyes, dorsal length 0.168, greatest dorsal width 0.093, least dorsal interval 0.106, ventral length 0.168, greatest ventral width 0.097, least ventral interval 0.097; median ocellus, diameter 0.023; posterior ocelli, dia-

(5) Measured to tip of ventral prolongation.

meter 0.033, interval 0.059, distance from median ocellus 0.085; postocular setae, length 0.217, interval 0.125, distance from eyes 0.070; interocellar setae, length 0.223, interval 0.066; anterior genal setae, length 0.037; mouth-cone, length beyond posterior dorsal margin of head 0.221. Prothorax, median length of pronotum 0.279, width (inclusive of coxae) 0.623; antero-marginal setae, length 0.049, antero angular 0.034, midlateral 0.065, epimeral 0.190, postero-marginal 0.241, coxal 0.108; mesothorax, width across anterior angles 0.682, greatest width 0.724; metathorax, greatest width 0.714; fore wings, length 2.11. Abdomen, greatest width (at segment II) 0.748; tube (X, only), length 0.518, greatest subbasal width 0.189, least apical width 0.080; seta I on IX 0.770, II 0.826, III 0.672; terminal setae 0.462.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	88	90	224	179	155	137(6)	88	89
Width (μ):	71	48	46	47	43	34	27	19

Total length of antenna, 1.05 mm.

BRASIL: Belém, Pará, July 23-August 20, 1951, J.D.H., 25 ♂'s, and 19 ♀'s taken from dead grasses, dead leaves, and dead branches (the holotype and allotype taken July 30, from intermixed dead vines and tall grasses). Here, again as with *costalimai*, the type series has been restricted to a homogeneous population at the type locality, though the species is widely distributed.

For the separation of this species from its relatives, see the discussion at the end of the description of the following species *(E. snodgrassi)*. It is named after Dr. Thomaz Borgmeier, O.F.M.

Elaphrothrips snodgrassi, sp. nov.
(Fig. 153)

MALE (macropterous). — Length about 6.9 mm. (fully distended, about 8.2 mm.). COLOR black or nearly so, with tarsi, articulations of legs, and apices of all tibiae blackish brown; antennae nearly black, but with segment II brown apically, III yellow but irregularly clouded or dappled with gray-brown in basal three-fifths, IV very dark brown in basal three-fifths excepting extreme base; wings of both pairs very lightly washed with brownish and with a dark median streak or vein (that of fore wings broader) extending beyond middle of wing, the fore pair darkened in scale and behind the subbasal setae, and with a second dark streak close to costal margin in basal eighth; major setae dark blackish brown, often pale at extreme tip.

(6) Measured to tip of ventral prolongation.

Head (Fig. 153) fully 2.3 times as long as greatest width, which is across eyes, and 2.8 times the greatest width near base, distinctly produced beyond the eyes, the process about 0.35 as long as greatest width of head near base, more than one-half as long as its own greatest width, with sides concave; cheeks flaring as usual to the eyes, their length in front of basal collar three times the length of eyes; genal setae pointed or nearly so, black, with briefly pale tips; postocular and interocellar setae long, pointed, black excepting their briefly pale tips. Eyes as long ventrally as dorsally, those of holotype measuring as follows in μ: dorsal length 196, greatest dorsal width 121, least dorsal interval 148, ventral length 196, greatest ventral width 119, least ventral interval 151. Ocelli of posterior pair with their hind margins on a line with middle of eyes, their diameter 34 μ, interval 97, distance from median ocellus 123; median ocellus distintly smaller (26 μ), with its posterior margin 43 μ in advance of anterior margin of eyes. Antennae slender, more than 1.6 times the length of head; segment III (Fig. 153) about 358 μ long and about 1.35 times the length of IV, with prominent outstanding setae near tip, the large one on inner apical surface arising distally to the smaller one on exact profile of that surface; sense-cones slender, short (the outer one on III about 60 μ), disposed as follows on the inner (outer) surfaces of segments: III 1 (1), IV (2) + 1 ventral, V 1 (1 + 1), VI 1 (0 + 1), VII 1 dorsal, Mouth-cone short, broadly rounded, somewhat surpassing middle of prosternum.

Prothorax along median line of pronotum distinctly less than one-half the length of head and (inclusive of coxae and coxal tubercles) less than twice as wide as long, epimeron not fused with notum, surface nearly smooth; setae measuring as follows in holotype: antero-marginal 57 μ, antero-angular 86, midlateral 83, epimeral 196, postero-marginal 180, coxal 182, the coxals arising from low tubercles, all nearly black, the five largest pairs with pale rounded tips. Fore legs normal; fore femora much as shown in Fig. 151, with numerous stout dark setae, not intermixed with longer ones, along basal half of outer surface, the several long setae in apical half with pale pointed tips; fore tarsi with the usual tooth. Wings of fore pair with about 60 accessory setae on posterior margin.

Abdomen normal, broadest at segment II; median tergite of I polygonally reticulate throughout, with no differentiation into two regions, almost precisely as shown in Fig. 152; setae on segment IX, and the terminal setae, long and dark, with finely drawn-out pointed tips, I on IX about 672 μ, II about 658, III about 644. Tube (segment X. only) more than 0.8 as long as head, with si-

des tapering almost evenly to tip, about 4.3 times as long as greatest subbasal width.

Measurements of male (holotype), in mm.: Length about 6.86 (distended, 8.24). Head, total length 0.911, greatest width across eyes 0.389, least width just behind eyes 0.298, greatest width across cheeks (near base) 0.336, least width near base 0.325, width across basal collar 0.340, greatest width at posterior angles of eyes 0.356; cephalic process, length 0.116, width at base of antennae 0.200, width at anterior margin of eyes 0.220; postocular setae, length 0.240, interval 0.221, distance from eyes 0.060; interocellar setae, length 0.280, interval 0.152; anterior genal setae, length 0.100; mouth-cone, length beyond posterior dorsal margin of head 0.267; prothorax, median length of pronotum 0.405, width (inclusive of coxae) 0.850; mesothorax, width across anterior angles 0.952, greatest width 0.998; metathorax, greatest width 1.0; fore wings, length 2.9; abdomen, greatest width (at segment II) 0.920; segment VII, length 0.477, VIII 0.458, IX 0.321; tube (X, only), length 0.767, greatest subbasal width 0.179, least apical width 0.094.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	124	134	358	265	207	163(7)	107	99
Width (μ):	94	60	65	60	53	40	35	23-24

Total length of antenna, 1.49 mm.

Female (macropterous). — Length, color, and general structure much as in male; postocular, interocellar, and abdominal setae longer; setae on third antennal segment not outstanding; anterior genal setae very short; midlateral, epimeral, and postero-marginal prothoracic setae much longer; fore femora without tubercle on inner lower surface and without the stout, closely-grouped setae in basal half of outer surface; pronotum with a pair of small foveae in anterior third of lateral fourths, these foveae divided by several small obscure reticles and often with one or two indistinct foveae behind them; tube longer than head and only four times as long as greatest width.

Measurements of female (allotype), in mm.: Length about 6.78 (distended, 8.17). Head, total length 0.892, greatest width across eyes 0.378, least width just behind eyes 0.302, greatest width across cheeks (near base) 0.357, least width near base 0.340, width across basal collar 0.364, greatest width at posterior angles of eyes 0.351; cephalic process, length 0.112, width at base of antennae 0.196, width at anterior margin of eyes 0.213; eyes, dorsal length 0.202, greatest dorsal width 0.108, least dorsal interval

(7) Measured to tip of ventral prolongation.

0.162, ventral length 0.200, greatest ventral width 0.112, least ventral interval 0.154; median ocellus, diameter 0.024; posterior ocelli, diameter 0.034, interval 0.097, distance from median ocellus 0.123; postocular setae, length 0.311, interval 0.174, distance from eyes 0.110-0.128; interocellar setae, length 0.390, interval 0.107; anterior genal setae, length 0.065; mouth-cone, length beyond posterior dorsal margin of head 0.309; prothorax, median length of pronotum 0.386, width (inclusive of coxae) 0.938; antero-angular setae, length 0.017, antero-marginals 0.049, midlaterals 0.125, epimerals 0.297, postero-marginals 0.344, coxals 0.174; mesothorax, width across anterior angles 1.02, greatest width 1.11; metathorax, greatest width 1.11; fore wings, length 3.07; abdomen, greatest width (at segment III) 1.15; tube (segment X, only), length 0.938, greatest subbasal width 0.235, least apical width 0.103; segment IX, seta I 0.826, II 0.854, III 0.714; terminal setae, 0.564.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	117	123	350	245	200	165([8])	110	104
Width (μ):	91	61	63	64	55	43	36	27

Total length of antenna, 1.41 mm.

Brasil: Serra da Cantareira, Franco da Rocha, S. P., June 11, 1948, J.D.H., 1 ♂ (holotype) and 6 ♀♀ (including allotype), from dead felled branches with leaves.

This, one of the largest species of the genus, is named after Dr. R. E. Snodgrass, for whose work I have always had a profound admiration.

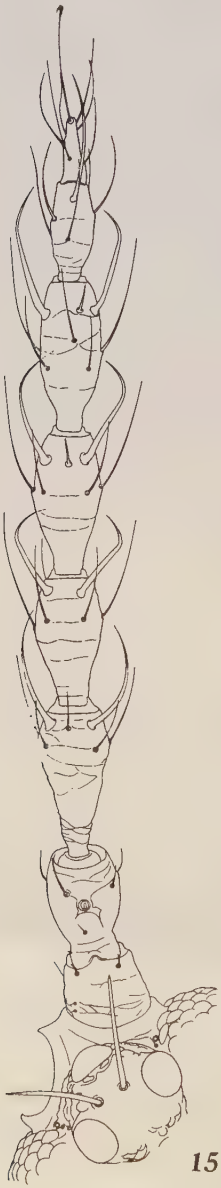
The species is allied to *spinosus, acanthomerus,* and *borgmeieri.* Its large size is strongly suggestive of the first of these, which has a much shorter head and differently colored antennae. It lacks the femoral tooth of *acanthomerus.* From *borgmeieri,* which, like *acanthomerus,* is much smaller, it differs slightly in the coloration of the third antennal segment and conspicuously in the pointed setae on the head and fore femora, the ventrally non-produced eyes, and (in the male) in the position of the large nearly apical seta on the inner surface of the third antennal segment.

Genus *SOPHIOTHRIPS* Hood, 1933

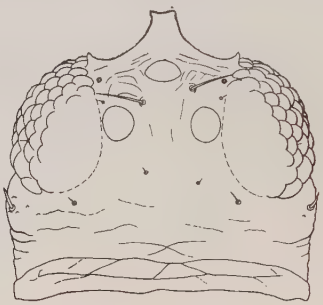
Sophiothrips comptus, sp. nov.
(Fig. 154)

Female (macropterous). — Length about 1.6 mm. (distended, about 1.9 mm.). Color of head and thorax light brown, of abdomen largely yellow, the eyes ringed with pale yellow, ocellar

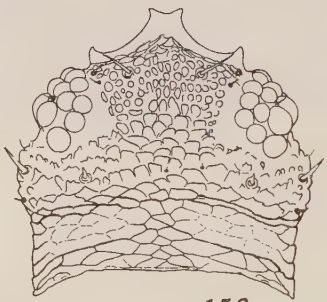
([8]) Measured to tip of ventral prolongation.



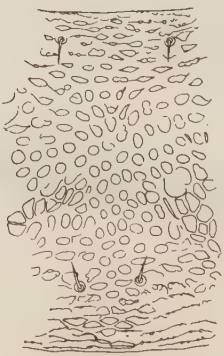
154



155



156



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Sophiothrips and *Trichinothrips*

154 - *Sophiothrips comptus,* sp. nov.; right antenna; ♀, holotype; x. 271; 155 - *S. politus,* sp. nov.; head; ♀, holotype; x 271; 156 - *S. verrucosus,* sp. nov.; head; ♀, paratype; x 271; 157 - Same; median portion of pronotum; ♀, paratype; x 271; 158 - *Trichinothrips latifrons,* sp. nov.; left antenna; ♀, holotype; x 271.

area blackish brown and underlain with dense red pigmentation, metathorax yellow posteriorly, abdomen more deeply yellow posteriorly to segment VIII, paler again in IX, the tube orange and tipped with dark brown, VIII with a pale brown cloud occupying most of dorsum; legs darkest in the blackish brown tibiae, these briefly paler at base, the hind pair irregularly paler apically, fore femora yellow but heavily shaded with brown along the morphologically dorsal surface, the other femora brown and darkest basally, with sides irregularly yellow in about apical half; tarsi ligth brown; antennae with segment I and apex of II (excepting its brown terminal ring) whitish yellow, I lightly clouded with brown, II shading to nearly black in pedicel, III with pedicel bright yellow, its remainder and all of IV, VII, and VIII dark blackish brown, V similarly dark but yellowish just beyond pedicel, VI somewhat paler than the three preceding segments, with dark pedicel and apical two-thirds, the intervening portion yellow; fore wings pale yellowish brown, darker apically, and with two short dark streaks near base, one of these involving the subbasal setae, the other costal in position; cephalic and prothoracic setae brown, those on abdomen largely dark yellow.

Head typical in general form, about 0.9 as long as greatest width (which is across cheeks), the occipital groove deep and distinct, the swelling behind eyes prominent and subangulate but scarcely toothed; ocellar area rounded and elevated, somewhat overhanging at sides and in front, the median ocellus forwardly directed (Fig. 154); dorsal surface verrucose in ocellar area, cross-striate behind eyes and behind occipital groove; postocular setae short (29 μ), situated almost on sides of head, their interval 164 μ, distance from eyes 20, their tips pale and dull; interocellar setae very large (62 μ) and prominent, arising close together (only 13 μ apart) on a line with front margins of posterior ocelli. Antennae (Fig.154) normal, though longer and more slender than usual and with the sculpture barely distinguishable; sense-cones formed and disposed as in the type-species.

Prothorax about equal in length to head and more than twice as wide across coxae as long; pronotum lightly reticulate throughout; antero-marginal setae minute (10 μ) and arising about 30 μ behind front margin of pronotum, the other major setae much stouter, nearly pointed, the antero-angulars 34, midlaterals 30, epimerals 108, postero-marginals 51, coxals 24. Pterothorax normal; mesonotum with the fine anastomosing transverse striae minutely aciculate; metanotum finely reticulate except at extreme sides. Legs normal; fore femora sculptured as illustrated for type-species; fore tarsi with the usual long curved tooth. Fore

WINGS as illustrated for type-species, without accessory setae on posterior margin.

ABDOMEN typical, slightly broader than prothorax; tube (segment X, only) fully 1.4 times the length of head, about 2.4 times as long as greatest subbasal width, and about three times as wide near base as at constricted apex, its dorsal and lateral surfaces ridged; setae pointed, I on segment IX 238 μ, II 349, III 224, terminal setae 145.

MEASUREMENTS of female (holotpe), in mm.: Length about 1.59 (distended, 1.88). Head, total length 0.166, width across eyes 0.175, least width just behind eyes 0.164, greatest width across cheeks 0.176, least width near base 0.161, width across basal collar 0.164, width in front of eyes 0.091; eyes, dorsal length 0.070, greatest width 0.053, interval 0.069; median ocellus, diameter 0.024; mouth-cone, length beyond posterior dorsal margin of head 0.162. Prothorax, median length of pronotum 0.170, width across coxae 0.365. Mesothorax, width across anterior angles 0.353; metathorax, greatest width posteriorly 0.361; fore wings, length 0.861. Abdomen, greatest width (at segment IV) 0.379; tube, length 0.238, width across basal collar 0.103, greatest subbasal width 0.098, least apical width 0.033.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	44	60	77	63	69	75	49	35
Width (μ):	42	37	36	36	34	33	22	13

Total length of antenna, 0.472 mm.

BRASIL: Nova Teutônia, S. C., February, 1950, Fritz Plaumann, 1 ♀ (holotype).

Allied to *squamosus, verrucosus,* and *politus,* but differing most conspicuously in the larger size, elevated ocellar area, and the more slender and differently colored antennae.

Sophiothrips politus, sp. nov.

(Fig. 155)

FEMALE (macropterous). — Length about 1.3 mm. (distended, about 1.6 mm.). COLOR yellowish brown, often paling to nearly clear yellow in abdominal segments III-VI and IX, VII and VIII always brown, tube orange and tipped with blackish brown; head clear yellow between and just behind eyes; legs darkest in the blackish brown mid and hind tibiae, these briefly paler at base and darkest just beyond; fore tibiae yellow at base and dappled with gray-brown beyond; femora largely yellow, darkened for some distance beyond base, the fore pair paler than the others; tro-

chanters and tarsi yellow, the former more or less washed with brownish; antennae yellow in segments I and II, the former and the pedicel of latter sometimes shaded lightly with brown; III-VI ordinarily yellow in about basal half and dark gray-brown beyond, though III is sometimes shaded to near base; VIII and VIII dark gray-brown; fore wings in anal area and in most of second fourth, the remainder paler but with tip of wings somewhat darkened; major setae mostly brownish, those on apical portion of abdomen yellow.

Head (Fig 155) typical in general form, about 0.9 as long as greatest width (which is across cheeks), the occipital groove distinct but not abrupt, the swelling behind eyes rounded; ocellar area not overhanging, the median ocellus directed upward and forward; dorsal surface not strongly sculptured, with a few indistinct striae in ocellar area and just behind eyes, the occiput with a few distinct dark cross-striae; postocular setae short (15 μ), situated almost on sides of head, their interval 149 μ, distance from eyes 10, their tips pale and dull; interocellar setae short (26 μ holotype), interval 23. Antennae typical, almost as illustrated for type-species, but much less heavily sculptured, the cross-striae not producing any serration at sides; sense-cones normal in number, form, and disposition.

Prothorax about 0.9 as long as head and about 2.4 times as wide across coxae as long; pronotum smooth, excepting for a few striae paralleling lateral and posterior margins; antero-marginal, antero-angular, midlateral, and coxal setae short (14-20 μ) but rather stout, epimerals 60, postero-marginals 35. Pterothorax normal; mesonotum with the fine anastomozing transverse striae minutely aciculate; metanotum finely reticulate except at extreme sides. Legs normal, not sculptured; fore tarsi with the usual long curved tooth. Fore wings as illustrated for type-species, without accessory setae on posterior margin.

Abdomen typical, about equal in width to pterothorax; setae pointed, I on segment IX 108 μ, II 126, III 150, terminal setae 60; tube (segment X, only) as illustrated for type-species but more slender, 1.4 times the length of head, 2.3 times as long as basal width, and three times as wide near base as at apex, its dorsal and lateral surfaces ridged.

Measurements of female (holotype), in mm.: Length about 1.33 (distended, 1.61). Head, total length 0.140, width across eyes 0.153, least width just behind eyes 0.139, greatest width across cheeks 0.157, least width near base 0.145, width across basal collar 0.148; eyes, dorsal length 0.070, width and interval respectively about 0.043 and 0.067; median ocellus, diameter 0.014; mouth-cone, length beyond posterior dorsal margin of head 0.087. Pro-

thorax, median length of pronotum 0.127, width across coxae 0.307. Mesothorax, width across anterior angles 0.293. Metathorax, greatest width posteriorly 0.291. Fore wings, length 0.749. Abdomen, greatest width (at segment V) 0.284; tube, length 0.190, width across basal collar 0.081, greatest subbasal width 0.078, least apical width 0.027.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	32	48	51	43	48	56	33	27
Width (μ):	37	30	31	30	30	30	20	14

Total length of antenna, 0.338 mm.

Male (apterous). — Very similar to female in color and structure, but with head yellow in anterior half, dorsum of pterothorax yellow, head with a small tooth at angulation behind eyes, prothorax and fore legs enlarged (as is usual in the genus)), pronotum smooth and shining; sternum VIII without glandular area; tergum IX with posterior margin not prolonged medially.

Measurements of male (allotype), in mm.: Length about 1.1. (distended, 1.31). Head, total length 0.130, width across eyes 0.127, least width just behind eyes 0.116, greatest width across cheeks (exclusive of teeth) 0.132, least width near base 0.117; cephalic process, lateral length 0.014, apical (and basal) width in front of eyes 0.077 (0.084); eyes, dorsal length 0.051, width about 0.026, interval about 0.075; postocular setae, length 0.021, interval 0.120, distance from eyes 0.013; interocellar setae, length 0.049, interval 0.034; mouth-cone, length beyond posterior dorsal margin of head 0.063. Prothorax, median length of pronotum 0.214, width across coxae 0.318, antero-marginal setae 0.094, antero-angulars 0.076, midlateral 0.094, epimerals 0.112, postero-marginals 0.097, coxals 0.045. Mesothorax, width across anterior angles 0.279. Metathorax, greatest width posteriorly 0.246. Abdomen, greatest width (at segment II) 0.265; tube (segment X, only), length 0.131, width across basal collar 0.071, greatest subbasal width 0.075, least apical width 0.024; seta I on segment IX 0.164, II 0.062, III 0.164; terminal setae 0.067.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	35	46	48	37	39	46	31	23
Width (μ):	33	30	27	27	27	26	19	13

Total length of antenna, 0.305 mm.

Brasil: Belém, Pará, July 26 (holotype) and August 4, 1951, J.H.D., 3 ♀♀ and 1 ♂, from dead branches of *Hevea*.

Britisn guiana: Georgetown (Botanical Gardens), June 30, 1951, J.D.H., 1 ♀, adventitious on grass.

Allied to *squamosus, verrucosus,* and *comptus,* but differing from all in the much more delicate sculpture, the fore femora and pronotum being almost perfectly smooth.

Sophiothrips verrucosus, sp. nov.

(Figs. 156, 157)

1950. *Sophiothrips squamosus,* Hood (in part), Rev. d. Ent., 21 (1-2) : 41.(9).

Female (apterous (10). — Length about 1.1. mm. (distended, 1.3 mm.). Color of head, thorax, and abdomen (inclusive of tube) nearly uniform dark blackish brown; legs nearly concolorous width body, save for the paler tarsi, the yellow trochanters, and the yellow apices of femora; antennae yellowish brown in segments I and II, width the pedicel and sides of II deep brown, III yellow in pedicel, remainder of antennae blackish brown, or with, pedicels of IV-VI faintly yellowish.

Head (Fig. 156) formed and sculptured much as in corresponding form of type-species, about 0.9 as long as greatest width (which is across cheeks), the occipital groove deep and distinct, except medially; postocular setae short (14-17 μ) and stout, dark brown,pointed, about 138 μ apart, and 13-16 from eyes; interocellar setae similarly dark, but a trifle slenderer and longer (17-22 μ), their interval 33-35. Antennae thoroughly typical, the sense-cones long, slender, and curved donward, but much shorter than illustrated for macropterous form of type-species, segments III-VI with one sense-cone on either surface. Mouth-cone typical.

Prothorax somewhat more than 1.2 times the length of head and fully 1.8 times as broad across coxae as median length of pronotum, the latter with its surface verrucose (Fig. 157), rather than reticulate or squamose; major setae short, stout, and dark in color, the antero-marginals, antero-angulars, and midlaterals subequal and 8-9 μ long, epimerals 32, postero-marginals and coxals 15-17. Pterothorax normal; mesonotum with the anastomosing transverse striae minutely aciculate, the metanotum verrucose; fore

(9) The discovery of much additional material of this genus since this paper was published, has led to a better interpretation of the worth of several characters and to the segregation of *verrucosus* from the closely allied *squamosus,* which latter species is not at present known from Brasil. The figures given in the paper cited are of some of the types of *squamosus,* and not of the present species.

(10) The sligth rounded projection at the sides of the mesonotal sclerite, though it bears three short setae and is doubtless homologous with the fore wing (just as in *squamosus*), is not articulated with the sclerite itself, and hence this form would better be looked upon as apterous, rather than brachypterous.

femora somewhat more heavily sculptured than in illustration of type-species; fore tarsi with the usual long curved tooth.

Abdomen typical, slightly broader than prothorax across coxae; setae pointed, those on the more apical segments bright yellow, those on basal segments brown, IX with seta I 116 μ, II 184, III 190, terminal setae 125; tube (segment X, only) fully 1.2 times the length of head, about twice as long as subbasal width and more than three times as wide near base as at constricted tip, its dorsal and lateral surface ridged.

Measurements of female (holotype), in mm.: Head, total length 0.130, width across eyes 0.133, least width just behind eyes 0.128, greatest width across cheeks 0.149, least width near base 0.135, apical (and basal) width of head process 0.079 (0.086), lateral length of process 0.013; eyes, dorsal length 0.043, width 0.030, interval 0.075; mouth-cone, length beyond posterior dorsal margin of head 0.083. Prothorax, median length of pronotum 0.160, width across coxae 0.294. Mesothorax, width across anterior angles 0.270; metathorax, greatest posterior width 0.262. Abdomen, greatest width (at segment IV) 0.300; tube, length 0.160, width across basal collar 0.086, subbasal width 0.083, apical width 0.025.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	32	46	52	40	44	49	31	24
Width (μ):	35	32	31	32	30	30	21	14

Total length of antenna, 0.318 mm.

Male (apterous). — Very similar to female in form and sculpture, but with a distinct tooth, 7-8 μ long, on angulation behind eyes, and with the prothorax and fore legs enlarged (as is usual in the genus); sternum VIII without glandular area; tergum IX with posterior margin produced medially to form a slight angulate lobe.

Measurements of male (allotype), in mm.: Length about 1.19 (distended, 1.49). Head, total length 0.139, width across eyes 0.132, least width just behind eyes 0.121, greatest width across cheeks (exclusive of teeth) 0.143, least width near base 0.127, apical width of cephalic process in front of eyes 0.081, lateral length of process 0.013; eyes, dorsal length 0.044, dorsal width 0.027, dorsal interval 0.077; postocular setae, length 0.023, interval 0.130, distance from eyes 0.017; interocellar, setae, length 0.034, interval 0.033; mouth-cone, length beyond posterior dorsal margin of head 0.109. Prothorax, median length of pronotum 0.224, width across coxae 0.333, antero-marginal setae 0.023, antero-angulars 0.006 and 0.034, midlaterals 0.035, epimerals 0.075, postero-marginals 0.048, coxals 0.031. Mesothorax, width across anterior angles 0.293; metathorax, greatest posterior width 0.281. Abdo-

men, greatest width (at segment II) 0.305; tube, length 0.133, width across basal collar 0.075, subbasal width 0.077, least apical width 0.027; seta I on segment IX 0.137, II 0.067, III 0.192; terminal setae 0.100.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	38	47	54	43	42	49	33	23
Width (μ):	36	30	30	30	29	28	19	11

Total length of antenna, 0.329 mm.

Brasil: Jacarepaguá, D.F., May 9, 18 (including allotype, ♂), and June 21 (including holotype, ♀), 1948, Dr. Thomaz Borgmeier and J.D.H., 5 ♀♀ and 1 ♂, from dead branches.

Closelly allied to *squamosus,* but with the body (including tube) dark blackish brown throughout, the antennae uniform blackish brown beyond pedicel of segment III, and the pronotum with sculpture verrucose rather than squamose.

Genus *ZALIOTHRIPS* Hood, 1938

The six species now assigned to this genus have demonstrated its close affinities with *Karnyothrips* ([11]) and have emphasized the greater importance of the strong, somewhat downwardly-directed tooth of the inner surface of the fore tarsi, near their end, and the lesser importance of the form and sculpture of the tube. From *Karnyothrips* it differs in having the antennae, seven-instead of eight-segmented, the pronotum with posterior margin concave instead of convex, and the prothoracic epimeron largely fused with the pronotum.

([11]) The name *Karnyothrips* Watson, 1924, is hereby revised in place of *Watsoniella* Karny, 1923, and the latter assigned as a synonym of it, because *Watsoniella* Karny is a junior homonym of *Watsoniella* Berg, 1898 (Comun. Mus. Nat. Buenos Aires, 1(2): 42, a genus of Lepidoptera. All of the species which the writer referred to *Watsoniella* (see Rev. d. Ent., 20(1-3): 23-25; 1949) must then be referred back to *Karnyothrips. Watsoniella flavipes* Moulton, 1928, the type of which cannot be borrowed and whose systematic position is open to question, had best remain temporarily where it is. (Dr. William T. M. Forbes and Dr. C. B. Williams called my attention to this homonymy almost simultaneously, several years ago.). *Watsoniella jonesiana* Cott, 1950, is a synonym of *Karnyothrips flavipes* (Jones), 1912. Mr. Cott's assumption that the two species then called *Watsoniella flavipes* are congeneric may possibly be true. However, whether they are congeneric or not, he has made an obvious synonym, because he renamed the older species instead of the newer one. Incidentally, Jone's species already had a generous supply of synonyms, all of them valid and thus available.

Zaliothrips imitator, sp. nov.

FEMALE (macropterous). — Length about 1.6 mm. (distended, 2.0 mm.). COLOR blackish brown, slightly darker in head, middle half of tube nearly black; legs with all tibiae and tarsi, and tips of fore femora, bright yellow, their remainder concolorous with body; antennae about concolorous with body, but with segments II and III paler, the former yellow apically, III yellow in about basal half, IV sometimes yellowish in pedicel and for a short distance beyond; fore wings yellowish, brown in basal part of anal area, the hind wings with a dark postmedian streak starting at basal fourth and gradually darkening to near tip of wing; setae pale brownish yellow.

HEAD nearly 1.5 times as long as greatest width, which is across cheeks shortly behind eyes; dorsal surface perfectly smooth, excepting for a few faint cross-striae in front of the distinct dark occipital line; cheeks evenly converging to a very slight basal collar, gently rounded to eyes; vertex not overhanging; postocular setae finely pointed, 118 μ apart, 49 long, and arising only 10 from eyes; other setae minute, pale, and pointed. EYES smoothly rounded, not protruding, dorsal length 83 μ, dorsal width and interval about 43 and 59, respectively. MEDIAN OCELLUS rather large (16 μ) and directed more upward than forward, about on a line with anterior margin of eyes. MOUTH-CONE short, semicircularly rounded at tip, extending about 60 μ beyond posterior dorsal margin of head. ANTENNAE normal, segment VII with partial suture on ventral surface, sense-cones disposed in the typical manner.

PROTHORAX typical, with posterior margin of pronotum slightly concave and slightly thickened, with a few faint striae at extreme sides and along posterior margin, and with a fine median apodeme at middle; major setae finely pointed, antero-marginals and antero-angulars shortest (23-24 μ), midlaterals 50, epimerals 77, postero-marginals 73, coxals 58. PTEROTHORAX normal, longer than wide; fore wings with 4-5 acessory setae; legs normal.

ABDOMEN long (as usual), not as broad as prothorax across coxae; all setae long and pointed, seta I on segment IX 131 μ, II 148, III 135; tube about one-half the length of head, twice as long as subbasal width, this width about twice the apical, narrowed just beyond basal pores, remainder evenly tapering, tip not constricted, sides not thickened, surface not longitudinally ridged; terminal setae very long (231 μ), more than twice the length of tube.

MEASUREMENTS of female (holotype), in mm.: Length about 1.57 (distended, 1.99). Head, total length 0.211, width across eyes 0.144, least width just behind eyes 0.137, greatest width across cheeks 0.145, least width near base 0.120, width in front of eyes

0.074. Prothorax, median length of pronotum 0.126, width across coxae 0.272. Pterothorax, length 0.324, greatest width 0.252; mesothorax, width across anterior angles 0.245; metathorax, greatest width posteriorly 0.239; fore wings, length 0.905. Abdomen, greatest width (at segment IV) 0.259; tube (segment X, only), length 0.107, width across basal collar 0.59, greatest subbasal width 0.056, least apical width 0.030.

Antennal segments:	I	II	III	IV	V	VI	VII
Length (μ):	40	53	56	57	48	46	71
Width (μ):	36	27	32	32	29	26-27	23

Total length of antenna, 0.371 mm.

Brasil: São Carlos, S.P., June 13, 1948, J.D.H., and D.P. de Souza Dias, 2 ♀ ♀ (including holotype), from dead branches.

Allied to *abdominalis* in that the tube is not thickened, not constricted at tip, and not longitudinally ridged, but differing in the uniform dark color of the abdomen and of the middle and hind femora, the presence of accessory setae on the posterior margin of the fore wings, the much shorter head, and the longer terminal setae. The specific name has reference to the striking resemblance which it bears to *Karnyothrips flavipes* (Jones).

Zaliothrips longisetosus, sp. nov.

Female (macropterous). — Length about 2.1 mm. (distended, about 2.7 mm.). Color dark blackish brown (nearly black), the tube opaque black, narrowly paler at base and tip; legs concolorous with body, excepting the brownish yellow fore tibiae and tarsi; antennae with segment I slightly paler than head, II paler than I and whitish apically, III largely yellow but shaded with brown in about apical half, IV concolorous with I and somewhat paler basally, V-VII dark blackish brown; wings pale yellowish, a little darker apically and basally, the fore pair brown in base of anal area; setae brownish yellow.

Head about 1.26 times as long as greatest width, which is across cheeks at posterior angles of eyes; dorsal surface delicately cross-striate in about posterior and lateral thirds, the occipital line dark and distinct; cheeks tapering evenly to a slight basal collar, scarcely serrate; vertex slightly overhanging; postocular setae dull at tip, 78 μ long, 153 apart, and about 18 from eyes; other setae minute, pale, and pointed. Eyes not protruding, dorsal length 93 μ, width and interval about 59 and 77, respectively, Median ocellus about 22 μ in diameter, directed more forward than upward, about on a line with anterior margins of eyes. Mouth-

CONE short, semicircularly rounded at tip, extending about 114 μ beyond posterior dorsal margin of head. ANTENNAE normal, segment VII without cross-suture, sense-cones disposed in the typical manner.

PROTHORAX typical, with posterior margin of pronotum concave and slightly thickened, with a few faint striae marginally and a slight median apodeme at middle; antero-marginal setae minute (about 6 μ), other major setae dull at tip, antero-angulars 39 μ, midlaterals 61, epimerals 115, postero-marginals 115, coxals 64. PTEROTHORAX normal, longer than wide; fore wings with 6-8 accessory setae.

ABDOMEN normal; setae finely pointed, those on apical segments especially long, I on IX 402 μ, II 455, III 346, terminal setae 308; tube slightly longer than head and much more than twice as long as greatest subbasal width, this width more than twice the apical, sides tapering nearly evenly to about apical third, then rounded to the briefly constricted tip, its sides thickened, surface apparently not longitudinally ridged.

MEASUREMENTS of female (holotype), in mm.: Length about 2.06 (distended, 2.65). Head, total length 0.249, width across eyes 0.195, greatest width across cheeks 0.196, least width near base 0.160, width in front of eyes 0.130. Prothorax, median length of pronotum 0.147, width across coxae 0.343. Pterothorax, length 0.406, greatest width 0.354; fore wings, length 1.08. Abdomen, greatest width (at segment IV) 0.406; tube (segment X, only), length 0.259, width across basal collar 0.106, greatest subbasal width 0.099, least apical width 0.046.

Antennal segments:	I	II	III	IV	V	VI	VII
Length (μ):	47	66	87	80	70	66	94
Width (μ):	46	33-34	41	37	35	33	28

Total length of antenna, 0.510 mm.

BRASIL: Boracéia, Munic. de Salesópolis, S.P., June 5, 1948, J.D.H., 1 ♀ (holotype), from dead branches.

Excepting the much larger Peruvian *nigripes*, whose tube is more than three times as long as its greatest width near base and which has about 14 accessory setae on the hind margin of the fore wings, this is the only species of the genus with dark mid and hind tibiae and with seta II on abdominal tergum IX as long as 450 μ.

Zaliothrips luteolus, sp. nov.

FEMALE (macropterous). — Length about 2.2 mm. (distended, about 2.9 mm.). COLOR yellowish brown in head and thorax, darkening in last few abdominal segments to blackish brown,

tube opaque black excepting narrowly across extreme base and in constricted tip; all femora, tibiae, and tarsi lemon-yellow, with mid and hind femora sometimes lightly shaded with brown; antennae about concolorous with head, but with segments II and III paler, the former yellow apically, III yellow in about basal half; wings of both pairs faintly yellowish, the fore ones darker basally and brown in scale; setae yellow.

Head about 1.4 times as long as greatest width (which is across cheeks shortly behind eyes); dorsal surface cross-striate basally in front of distinct dark occipital line and at extreme sides, the cheeks thus distinctly (but finely) serrate; cheeks just perceptibly rounded to eyes, tapering nearly evenly to a slight basal collar; vertex not overhanging; postocular setae finely pointed, 92 μ long, 158 apart, and arising only 12 from eyes; other setae minute, pale, and pointed. Eyes smoothly rounded, not protruding, dorsal length 114 μ, width and interval respectively about 64 and 68. Median ocellus large (29 μ) and directed more upward than forward, about on a line with anterior margin of eyes. Mouth-cone *short,* semicircularly rounded at tip, extendig about 90 μ beyond posterior dorsal margin of head. Antennae normal, segment VII without cross-suture, sense-cones disposed in the typical manner.

Prothorax typical, with posterior margin of pronotum concave and slightly thickened, almost perfectly smooth, and with a fine median apodeme at middle; major setae finely pointed, antero-marginals 46 μ, antero-angulars 35, midlaterals 95, epimerals 144, postero-marginals 165, coxals 93. Pterothorax normal, longer than wide; fore wings with 7-9 accessory setae; legs normal.

Abdomen long (as usual), not as broad as prothorax across coxae; all setae long and pointed, I on segment IX 294 μ, II 322, III 245; tube 0.8 the length of head, twice as long as greatest subbasal width, this width 2.6 times the apical, sides very slightly concave just beyond basal pores, tapering to constricted apex, its sides thickened, surface longitudinally ridged; terminal setae 196 μ.

Measurements of female (holotype), in mm.: Length about 2.19 (distended, 2.89). Head, total length 0.280, width across eyes 0.195, greatest width across cheeks 0.196, least width near base 0.162, width in front of eyes 0.092. Prothorax, median length of pronotum 0.174, width across coxae 0.550. Pterothorax, length 0.441., greatest width 0.379; mesothorax, width across anterior angles 0.371; metathorax, greatest width posteriorly 0.364; fore wings, length 1.12. Abdomen, greatest width (at segment IV) 0.395; tube (segment X, only), length 0.224, width across

basal collar 0.122, greatest subbasal width 0.112, least apical width 0.043.

Antennal segments:	I	II	III	IV	V	VI	VII
Length (μ):	49	67	87	85	70	70	100
Width (μ):	48	33-34	45	42	34	31	25

Total length of antenna, 0.528 mm.

Male (macropterous). — Very similar to female in color and structure; sternum VIII with glandular area extending across middle, occupying just less than half its length, and not obliterating the antecostal line.

Measurements of male (allotype), in mm.: Length about 1.84 (distended, 2.29). Head, total length 0.238, width across eyes 0.163, least width just behind eyes 0.162, greatest width across cheeks 0.163, least width near base 0.139, width in front of eyes 0.080; eyes, dorsal length 0.087, width about 0.049, interval about 0.066; median ocellus, diameter 0.026; postocular setae, length 0.092, interval 0.132, distance from eyes 0.010; mouth-cone, length beyond posterior dorsal margin of head 0.084. Prothorax, median length of pronotum 0.143, width across coxae 0.346, antero-marginal setae 0.028, antero-angulars 0.037, midlaterals 0.079, epimerals 0.114, postero-marginals 0.121, coxals 0.075. Pterothorax, length 0.353, greatest width 0.302; mesothorax, width across anterior angles 0.300; metathorax, greatest width posteriorly 0.281; fore wings, length 0.952. Abdomen, greatest width (at segment V) 0.312; tube (segment X, only), length 0.189, width across basal collar 0.099, greatest subbasal width 0.098, apical width 0.040, terminal setae 0.168; seta I on segment IX 0.232, II 0.266, III 0.308.

Antennal segments:	I	II	III	IV	V	VI	VII
Length (μ):	42	57	71	70	58	60	88
Width (μ):	42	29	38	35	30	27	22

Total length of antenna, 0.446 mm.

Brasil: Belém, Pará, July 23, 1951, J.D.H., 2 ♀♀ (including holotype), from dead branches of *Hevea;* and July 24, 1951, J.D.H., 3 ♂♂ (including allotype), from *Andropogon* and other dead and living vegetation.

Readily known by the almost wholly yellow legs (middle and hind femora, only, sometimes shaded with brown) and the stout, thickened tube, which is about twice as long as its subbasal width.

Genus *TRICHINOTHRIPS* Bagnall, 1929 ([12])

Trichinothrips latifrons, sp. nov.
(Fig. 158)

Female (macropterous). — Length about 1.9 mm. (distended, 2.6). Color dark blackish brown (nearly black to the naked eye), head darkest, tube paler in apical third; legs about concolorous with body, the femora darkest but paler at either end and heavily shaded beyond middle; tibiae distinctly paler, narrowly nearly yellow at base, heavily shaded just beyond, fading to pale brown at tip, fore pair lightest; tarsi pale brown; fore wings pale brownish, darkest in anal area, palest just beyond the subbasal setae and in a narrow streak paralleling posterior margin, the entire margin of wing and a postmedian streak in about second fifth somewhat darker; antennae with segment III yellowish but washed with gray beyond pedicel, their remainder brown or gray-brown, I narrowly pale across base, II nearly black in pedicel and yellow apically, IV less blackish than V-VIII, all of these unicolorous.

Head about 1.1 times as long as greatest width, which is across cheeks, the width across eyes only slightly less; sides minutely but sharply incised at posterior edge of eyes, the cheeks thus abruptly narrowed to eyes in front, posteriorly converging and nearly straight, rather finely serrate; frontal costa (Fig. 158) unusally broad for the genus (15 μ) and distinctly concave; dorsal surface striate at sides and posteriorly, the occipital line strongly arched forward but not extending to sides of head, thus not forming a basal collar; postocular setae long (119 μ), pale, broadly dilated and rounded at tip, their bases about 171 μ apart and 21 from eyes. Eyes normal, rounded, 110 μ long dorsally, approximately 69 wide and 79 apart. Ocelli normal, large, the median one about 30 μ in diameter and with its posterior margin opposite front margin of eyes. Mouth-cone typical, short, rounded, its tip about 87 μ behind posterior dorsal margin of head. Antennae (Fig. 158) seven-segmented but with vestigial transverse suture on ventral surface of terminal segment; sense-cones and setae long, III and IV with the sense-cones arising only a short distance in front of middle of segment, surface smooth; segment III without a fine line connecting the apical setae.

Prothorax normal, short (about 0.54 the length of head), smooth except for a very few dark striae along posterior margin, epimeron largely fused with notum; major setae formed and co-

([12]) *Symphyothrips fuscatus* Karny, from Java, to judge from the original description, seems obviously to be a member of this genus, and may be called *Trichinothrips fuscatus* (Karny), comb. nov.

lored like postoculars, antero-marginals and antero-angulars 81-86 μ, middlaterals 104, epimerals 120, postero-marginals 114, coxals 61. Pterothorax normal, elongate, much longer than broad; anterior angles broadly rounded, not projecting, 337 μ across; metanotum longitudinally striate each side of the long (90μ) colorless knobbed setae near base; fore wings with 9-10 accessory setae on posterior margin, the two subbasal setae knobbed and 107 and 126 μ, respectively.

Abdomen normal, broadest at segment III; most setae knobbed at tip like postoculars, colorless excepting basally, I on III-VI 140-144 μ; IX with I and II knobbed, III pointed, respectively 106, 111, and 115 μ; terminal setae 150 μ; tube (segment X, only) about 0.4 the length of head, 1.3 times as long as greatest width near base, the apical width 0.6 the basal width, sides swollen near base, concave at middle, and very slightly narrowed at apex.

Measurements of female (holotype), in mm.: Length about 1.93 (distended, 2.59). Head, total length 0.245, width across eyes 0.217, width just behind eyes 0.210, greatest width across cheeks 0.220, least width near base 0.196, width in front of eyes 0.097. Prothorax, median length of pronotum 0.132, width across coxae 0.336. Metathorax, greatest width posteriorly 0.360. Fore wings, length 1.02. Abdomen, greatest width (at segment III) 0.433. Tube, length 0.094, greatest subbasal width 0.072, least apical width 0.043.

Antennal segments:	I	II	III	IV	V	VI	VII
Length (μ):	36	57	70	86	68	59	77
Width (μ):	46	34	40	38	30	30	27

Total length of antenna, 0.453. mm.

Brasil: São Carlos, S.P., June 14, 1948, J.D.H., 1 ♀ (holotype), from dead and dying branches of orange trees.

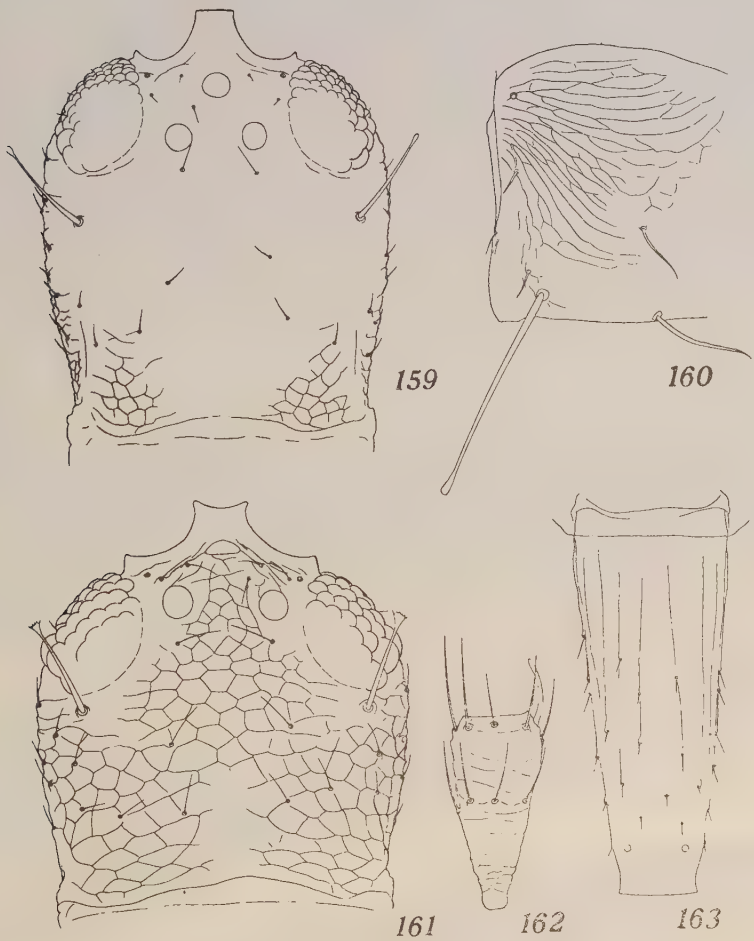
This species is very different from all of its congeners in that the frontal costa is broad (15 μ) and distinctly concave or grooved as seen from above, the sense-cones on antennal segments III and IV more posterior in position, and the subapical dorsal seta on III arising midway between the sense-cones and tip of segment, rather than between the sense-cones and on the same transverse line with the other subapical seta.

Genus *ADELOTHRIPS*,

Adelothrips eucharis, sp. nov.

(Figs. 159, 160)

Female (macropterous). — Length abouth 2.6 mm. (distended, 3.4 mm.). Color bright yellow, with abundant orange inter-



Adelothrips

159 - *A. eucharis,* sp. nov.; head; ♀, holotype; x 159; 160 - Same; left side of abdominal tergum II; ♀, holotype; x 224; 161 - *A aberrans,* sp. nov.; head; ♀, holotype; x 271; 162 - Same; segment III of right antenna; ♀, holotype; x 417; 163 - Same; tube; ♀, holotype; x 271.

nal pigmentation, pterothorax shaded with brown, abdominal segments II-VII each with a blackish brown (and more or less complete) basal cross-band, this band paler in median third of tergum II and in median halves of VI and VII, darkest in IV and V, and extending across sterna of III-V, segment VIII shaded at sides; tube dark orange-yellow, paler across base, and tipped with gray; antennae clear yellow in segments I and II and in basal three-fourths of III, remainder of III lightly shaded, IV-VIII gray-brown, the first of these paler than the others and yellowish across middle; fore legs, and middle and hind femora, bright golden yellow, the fore femora with a faint cloud along the morphological inner surface, fore tibiae lightly shaded except at base, fore tarsi paler; middle and hind femora nearly white apically, lightly clouded basally, and with a dark broken cloud forming a ring near the pale tip, their tibiae and tarsi nearly white; fore wings gray-brown in anal lobe and to first subbasal seta, gray again in about middle third, and darkened apically, with a pale longitudinal streak at middle; major setae grayish yellow.

Head (Fig. 159) 1.34 times as long as width across eyes and 1.25 times the greatest width across cheeks, its least width less than 0.9 its greatest width; cheeks roundly converging to near basal collar and rounded to eyes; dorsal surface without sculpture, excepting basally in lateral thirds, where it is lightly polygonally reticulate; vertex not produced, not overhanging; postocular setae knobbed, about 100 μ long, 225 apart, and 42 from eyes; other cephalic setae short, pale, and pointed. Eyes normal, not protruding, about 90 μ long dorsally. Ocelli about 23 μ in diameter, the median one directed nearly upward and with anterior margin behind that of eyes, the posterior ones with anterior margin somewhat behind middle of eyes. Antennae typical, 8-segmented, but with the last segment conical and compactly united with the preceding one, though separated by a complete, straight, transverse suture; sense-cones normal, slightly curved, III I (2), IV 2 (2), V and VI each 1 (1). Mouth-cone heavy, broadly rounded, extending about 181 μ beyond posterior dorsal margin of head.

Prothorax with median line of pronotum 0.6 that of head and contained in the trans-coxal width about 2.2. times, its surface smooth save for a few faint striae along posterior margin, midline with trace of apodeme; all major setae present, broadened at tip, antero-marginals 47 μ, antero-angulars 65, midlaterals 86, epimerals 106, postero-marginals 113, coxals 67. Pterothorax normal, broadest across anterior angles. Legs normal; fore tarsi strongly toothed. Fore wings normal, 1.10 mm. long, equal in

width throughout, with 8-9 accessory setae, and with the three knobbed subbasal setae 66, 83, and 100 μ long respectively.

Abdomen broader than pterothorax; median tergite of segment I with two pores; tergum II (Fig. 160) smooth in median third, with a fan-like patch of dark striae in anterior part of lateral fourths or more, these striae originating along sides of basal third of tergum; lateral seta on segments VI and VII, all three pairs on IX, and the darkened terminal setae, pointed, others knobbed; seta I on IX 281 μ, II 301, III 272, terminal 256. Tube heavily sclerotized, nearly 0.8 the length of head and 2.6 times as long as greatest subbasal width, this width less than 2.2 times the apical width; sides somewhat swollen basally to the first pair of pores, thence straight to the apical pores, and rather strongly narrowed beyond.

Measurements of female (holotype), in mm.: Length 2.64 (fully distended, 3.39). Head length 0.351, width across eyes 0.262, greatest width across cheeks 0.281, least width near base 0.235, width across basal collar 0.258. Prothorax, median length of pronotum 0.210, greatest width (inclusive of coxae) 0.459; mesothorax, width across anterior angles 0.421, width posteriorly 0.407; metathorax, greatest width 0.378. Abdomen, greatest width (at segment V) 0.456; tube (X only), length 0.276, width across basal collar 0.112, greatest subbasal width 0.106, least apical width 0.049.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	60	80	119	104	91	80	66	37
Width (μ):	57	39	43	43	40	33	29	19

Total length of antenna, 0.637 mm.

Male: Identical with female in color and in most details of structure; seta II on abdominal segment IX abbreviated.

Measurements of male (allotype), in mm.: Length about 2.15 (distended, 2.55). Head, length 0.293, width across eyes 0.231, greatest width across cheeks 0.244, least width near base 0.204, width across basal collar 0.213; median ocellus, diameter 0.022; postocular setae, length 0.085, interval 0.197, distance from eyes about 0.035; mouth-cone, length beyond posterior dorsal margin of head 0.196. Prothorax, median length of pronotum 0.206, greatest width (inclusive of coxae) 0.421; antero-marginal setae, length 0.037, antero-angulars 0.059, midlaterals 0.084, epimerals 0.105, postero-marginals 0.096, coxals 0.065; mesothorax, width across anterior angles 0.375, greatest width posteriorly 0.367; metathorax, greatest width 0.336; fore wings, length 0.959. Abdomen, greatest width (at segment V) 0.393; tube (X, only), length

0.231, width across basal collar 0.106, greatest subbasal width 0.103, least apical width 0.048; seta I on segment IX 0.285, II 0.081-0.122, III 0.308; terminal setae, length 0.238.

Brasil: Fordlândia (Tapajós River), Pará, July 10, 1951, J.D.H., 1 ♀ and 1 ♂, from dead grass.

From those congeners which have two sense-cones on the outer surface of the third antennal segment, the median tergite of segment I of the abdomen with two pores, and the median ocellus with its posterior margin on a line with or behind the anterior margin of eyes, this species is readily known by its coloration and the sculpture of the second abdominal tergum.

Adelothrips aberrans, sp. nov.
(Figs. 161-163)

Female (macropterous). — Length about 1.4 mm. (distended, 1.7 mm.). Color pale yellow, slightly darker in abdominal segments V-IX, tube orange but paler at base and apex; legs concolorous with body; antennae pale, the first two segments yellow, III yellow but obscurely shaded apically, IV-VIII pale gray but yellowish basally; fore wings pale yellowish; somewhat darker in anal lobe and basally.

Head (Fig. 161) only 1.14 times as long as width across eyes and a trifle shorter than greatest width across cheeks, its least width less than 0.9 its greatest width, cheeks roundly converging to near basal collar and rounded to eyes; dorsal surface delicately polygonally reticulate almost throughout; vertex rounded, slightly produced and somewhat overhanging; postocular setae pale yellow, dilated and divided at tip, about 57 μ long, 138 apart, and only 8 from eyes; other cephalic setae nearly colorless and very finely pointed. Eyes normal, with one enlarged posterior facet distinctly protruding, 60 μ long dorsally, about 50 wide and 79 apart. Ocelli about 17 μ in diameter, the median one directed forward and with posterior margin distinctly in advance of anterior margin of eyes, the posterior ones about 34 μ apart and 22 from median one. Antennae 8-segmented, but with the last segment conical and compactly united with the preceding one, though separated from it by a complete and irregular diagonal suture; sense-cones on III (Fig. 162) and IV unusual in that they are rounded at tip (those on V and VI nearly pointed) and few in number, III 0 (1), IV 1 (1), V and VI each 1 (1). Mouth-cone heavy, broadly rounded, extending about 130 μ beyond posterior dorsal margin of head.

Prothorax with median line of pronotum little more than 0.5 that of head and contained in the trans-coxal width 2.4 times, its

surface sculptured almost throughout with widely-spaced delicate anastomosing lines, midline with trace of apodeme; all major setae present, yellow, broadened and divided at tip, epimerals 44-53 μ, the others (including coxals) 27-36 μ. Pterothorax normal; metanotum delicately polygonally reticulate except at sides. Legs normal, though short; hind tibiae only 167 μ long; fore tarsi strongly toothed. Fore wings normal, 689 μ long, equal in width throughout, with one or two accessory setae, only; subbasal setae dilated apically and respectively 21, 18, and 39-53 μ long.

Abdomen broader than thorax; median tergite of segment I with two pores, its surface reticulate much like head; other terga delicately sculptured, more strongly so at sides, the striae more transverse on basal segments and less distinct medially, more strongly aciculate on II, and forming polygonal reticles on sides of VI-IX, the median portions of VIII and IX nearly smooth; setae pale, becoming bright yellow on VIII and IX, terminal setae pale brownish; seta III on VII-IX pointed, II on VII and IX very slightly dilated, terminal setae with finely drawn-out points, others dilated apically, I on IX 131 μ, II 181, III 148, terminal 186. Tube (Fig. 163) heavily sclerotized, equal in length to head and nearly 2.6 times as long as greatest subbasal width, this width twice the apical width; sides nearly straight, only slightly arched from base to the slightly constricted tip, surface longitudinally ridged, finely setose, otherwise nearly smooth.

Measurements of female (holotype), in mm.: Length about 1.43 (distended, 1.66). Head, length 0.203, width across eyes 0.178, greatest width across cheeks 0.182, least width near base 0.160, width across basal collar 0.165. Prothorax, median length of pronotum 0.108, width across coxae 0.259; mesothorax, width across anterior angles 0.267, greatest width 0.273; metathorax, greatest width posteriorly 0.252. Abdomen, greatest width (at segment III) 0.318; tube (X, only), length 0.203, greatest subbasal width 0.079, least apical width 0.038.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	44	57	65	58	60	54	52	25
Width (μ):	42	33	30	33	31	33	27	18

Total length of antenna, 0.415 mm.

Brasil: Santarém, ([13]) Pará July 12, 1951, J.D.H., 1 ♀, from dead branches.

([13]) Both Alfred Russel Wallace and Herbert H. Smith, in their books on the Amazons and Brasil, consistently spell the name of this old city, located at the junction of the Tapajós and Amazon rivers, without the acute accent over the e; and Bagnall described *Diceratothrips bicornis* from "Santarem", also. The city is an important one, and in Brazil its name is always spelled, I believe, as I have given it.

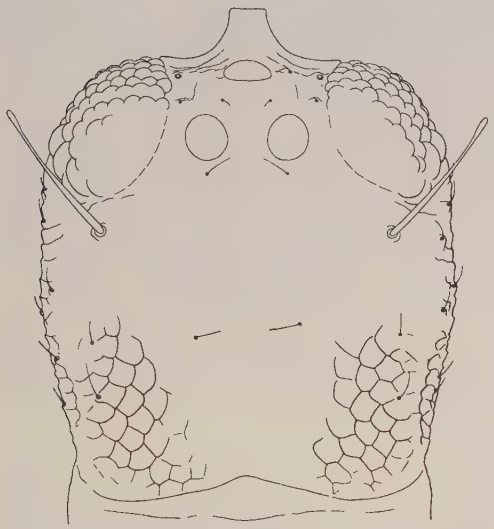
This is a very distinctive species. It agrees only with the Floridian *phaeura* in having one sense-cone, instead of two, on the outer surface of the third antennal segment, but it is unique in that the inner surface of that segment lacks a sense-cone. The shorter, reticulate head, the long ridged tube, and the knobbed postocular setae are likewise prominent characters for the separation of the two species.

Adelothrips caudatus, sp. nov.
(Figs. 164, 165)

Female (macropterous). — Length about 2.2 mm. (distended, 2.4 mm.). Color yellow, with red internal pigmentation, prothorax (including fore coxae) and abdominal segments II-III and VII-IX darkened with brown, the prothorax darkest; head shading to brown in about anterior third; tube brownish orange, yellow at base and tipped with gray; legs yellow, but with all femora shaded with gray-brown except at base and apex; antennae bright golden yellow in segments I-III, their remainder largely dark gray-brown, I shaded with brown, III shaded in about apical fourth, IV nearly yellow in basal fourth, V with a yellowish ring in second half of pedicel; fore wings nearly uniform light brown throughout, darker in anal lobe and paler just before the subbasal setae.

Head (Fig. 164) a little less than 1.3 times as long as width across eyes and 1.2 times as long as greatest width across cheeks, its least width about 0.8 its greatest width, cheeks nearly parallel in anterior half, slightly rounded to eyes, and tapering to near basal collar; dorsal surface rather strongly reticulate basally in lateral thirds, smooth elsewhere; vertex transverse, scarcely produced; postocular setae pale yellowish, somewhat dilated but not divided at tip, about 99 μ long, 171 apart, and 16 from eyes; other cephalic setae nearly colorless and pointed. Eyes normal, not protruding, 90 μ long dorsally, about 70 wide and 100 apart. Ocelli 28-30 μ in diameter, all 26 apart, the median one directed forward and with its anterior margin about on a line with that of eyes. Antennae 7-segmented but sometimes with partial transverse ventral suture beyond middle of VII; structure typical; sense-cones long, slender, curved, and pointed, III 1 (2), IV 2 (2), V and VI each 1 (1), the outer, upper ones on III and IV 60 and 67 μ, respectively. Mouth-cone heavy, broadly rounded, extending about 182 μ beyond posterior dorsal margin of head.

Prothorax with median line of pronotum about 0.8 that of head and contained in the trans-coxal width about 1.6 times, its surface with a few transverse striae along posterior margin and with a narrow band of light polygonal reticulation behind anterior



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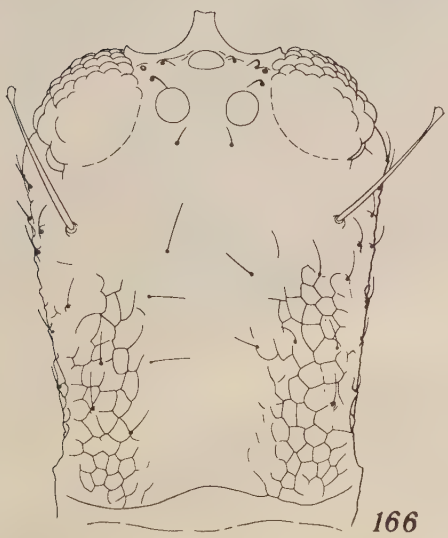

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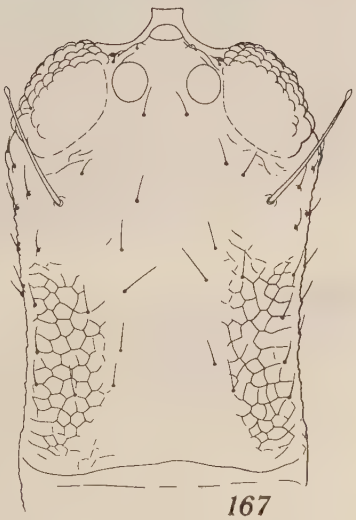

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Adelothrips

164 - *A. caudatus,* sp. nov.; head; ♀, holotype; x 224; 165 - Same; tube; ♀, holotype; x 224; 166 - *A. bellulus,* sp. nov.; head; ♀, holotype; x 224; 167 - *A. buccalis,* sp. nov.; head; ♀, holotype; x 159.

margin, midline with a long dark apodeme; all major setae present, yellow, broadened but not divided at tip, antero-marginals 75 μ, antero-angulars 61, midlaterals 81, epimerals 103, postero-marginals 81, coxals 70. Pterothorax normal, narrower than prothorax across coxae; metanotum polygonally reticulate except at sides. Legs normal, fore tarsi strongly toothed. Fore wings normal, 1.04 mm. long, slightly narrower basally than beyond, with 10 accessory setae; subbasal setae dilated apically and respectively 60, 74, and 83 μ long.

Abdomen narrower than prothorax across coxae; median tergite of segment I without pores, its surface lightly polygonally reticulate; other terga lightly sculptured, more strongly so at sides, the striae forming polygons on II, across base of IX, and in lateral portions of the others, VIII and IX largely smooth; setae pale, becoming bright yellow on VIII and IX, terminal setae, pale brownish yellow; seta III on III-IX, as well as II on IX an the terminal setae, pointed; other setae (excepting possibly I on IX, which is defective) knobbed, the terminal ones 238 μ and with finely drawn-out points, II on IX 280 μ, III 252. Tube (Fig. 165) heavily sclerotized, fully 0.8 as long as head and about 2.33 times as long as greatest subbasal width, this width nearly 2.35 times the apical width; sides nearly straight, only very slightly arched from base to the slightly constricted tip, surface roughened with numerous nearly circular depressions and finely setose.

Measurements of female (holotype), in mm.: Length about 2.15 (distended, 2.39). Head length 0.307, width across eyes 0.239, greatest width across cheeks 0.252, least width near base 0.209. Prothorax, median length of pronotum 0.250, greatest width (inclusive of coxae) 0.417; mesothorax, width across anterior angles 0.349, greatest width 0.370; metathorax, greatest width posteriorly 0.336. Abdomen, greatest width (at segment IV) 0.381; tube (X only), length 0.252, width across basal collar 0.111, greatest subbasal width 0.108, least apical width 0.046.

Antennal segments:	I	II	III	IV	V	VI	VII
Length (μ):	57	73	80	83	74	76	85
Width (μ):	50	40	45	45	40	35	30

Total length of antenna, 0.528 mm.

Brasil: Belém, Pará, July 24, 1951, J.D.H., 1 ♀, from dead branches. Readily known by the peculiar sculpture of the tube.

Adelothrips bellulus, sp. nov.
(Fig. 166)

Female (macropterous). — Length about 2.0 mm. (distended, 2.5 mm.). Color yellow, with red internal pigmentation,

head shaded with brown in about anterior fourth; tube yellow, more deeply so in about second to fourth tenths, with apical eighth gray; legs about concolorous with body, femora lightly shaded with gray; antennae yellow in segments I-III, III, lightly shaded beyond the apical whorl of setae; IV and V dark at extreme base and shaded in apical two-thirds and one-half, respectively, yellow between; VI darker, but yellowish for a short distance beyond pedicel; VII-VIII dark brown; fore wings yellowish gray, darkened in anal lobe and at middle.

Head (Fig. 166) about 1.5 times as long as width across eyes and 1.44 times as long as greatest width across cheeks, its least width somewhat less than 0.8 its greatest width, cheeks tapering straightly to near basal collar and strongly rounded to eyes; dorsal surface elevated medially, polygonally reticulate in lateral thirds or more of posterior half, smooth elsewhere; vertex rounded, not produced, nearly vertical in front; postocular setae yellow, dilated at tip, about 100 μ long, 158 apart, and 36 from eyes; other cephalic setae nearly colorless and pointed, some very slender. Eyes somewhat flattened laterally (because of a projecting, enlarged facet), 70 μ long dorsally, about 63 wide and 81 apart. Ocelli 23 μ in diameter, the median one directed forward and upward and somewhat overhanging, its anterior margin about on a line with that of eyes; posterior ocelli about 24 μ apart and 15 from median one. Antennae 7-segmented, but with partial transverse ventral suture beyond middle of VII; structure typical; sense-cones long, slender, curved, and pointed, III 1 (2), IV 2 (2), V and VI each 1 (1), the outer upper ones on III and IV 52 and 56 μ, respectively. Mouth-cone heavy, broadly rounded, extending about 146 μ beyond posterior dorsal margin of head.

Prothorax with median line of pronotum only 0.5 that of head and contained in the trans-coxal width nearly 2.4 times, its surface virtually without sculpture, midline without apodeme; all major setae present, brownish yellow, broadened at tip, antero-marginals 69 μ, antero-angulars 58, midlaterals 77, epimerals 75, postero-marginals 88, coxals 79. Pterothorax normal, narrower than prothorax across coxae; metanotum faintly longitudinally striate on sides of elevated median area. Legs normal, fore tarsi strongly toothed. Fore wings normal, 847 μ long, very slightly broader just beyond subbasal setae than elsewhere, with 5 accessory setae, the subbasal setae dilated apically and respectively 55, 67, and 78-88 μ long.

Abdomen narrower than prothorax across coxae; median tergite of segment I with a pair of pores, its surface and that of other terga, as well, nearly perfectly smooth; setae pale brownish yellow, terminal setae brown; seta II on VI-VIII, III on III-V III, I-III on

IX, and terminal setae, all finely pointed, the others knobbed; I on IX 177 μ, II 221, III 168, terminal setae 243. Tube not heavily sclerotized, smooth, about 0.54 the length of head, twice as long as width across basal collar, this width about twice the apical width; sides nearly straight, converging only slightly more abruptly in the apical gray area.

Measurements of female (holotype), in mm.: Length about 2.0 (fully distended, 2.49). Head, length 0.314, width across eyes 0.206, greatest width across cheeks 0.218, least width near base 0.171, width across basal collar 0.182. Prothorax, median length of pronotum 0.153, greatest width (inclusive of coxae) 0.365; mesothorax, width across anterior angles 0.318, greatest width 0.322; metathorax, greatest width posteriorly 0.308. Abdomen, greatest width (at segment IV) 0.329; tube (X only), length 0.169, width across basal collar 0.084, greatest subbasal width 0.081, least apical width 0.040.

Antennal segments:	I	II	III	IV	V	VI	VII
Length (μ):	51	60	67	66	63	63	84
Width (μ):	44	34	37	37	33	33	29

Total length of antenna, 0.454 mm.

Brasil: Belém, Pará, August 11, 1951, J.D.H., 1 ♀, from dead leaves of *Euterpe oleracea*.

The presence of pores on the median tergite of the first abdominal segment, the long pointed setae on the ninth abdominal segment, the position of the median ocellus, as well as the relatively short and stout antennae and tube, ally this species with *xanthopus;* but that species, the type of the genus, described from Florida, has much darker antennae, and the head is not narrowed strongly toward base.

Adelothrips buccalis, sp. nov.

(Fig. 167)

Female (macropterous). — Length about 2.3 mm. (distended, 3.0 mm.). Color yellow, with red internal pigmentation, head, prothorax (including coxae), mesothorax, and abdominal segments II-IX shaded with gray, the abdomen darkest in II and VII-IX, its intermediate segments darkened principally at sides, the metathorax and first abdominal segment clear yellow; tube orange, paler at base and tipped with gray in about apical tenth; femora gray, paler basally and yellow at tip, the fore pair paler than the others; tibiae and tarsi yellow, the middle and hind pairs paler; antennae with segments I-III yellow, IV darker yellow and shaded in about apical half, V darker throughout than IV but similarly co-

lored, VI and VII gray-brown but the former somewhat yellowish in about basal fourth; fore wings yellowish gray, darkened in anal lobe and with a dark cloud before middle.

Head (Fig. 167) about 1.6 times as long as width across eyes and about 1.5 times as long as greatest width across cheeks (which is just behind outer angles of eyes), its least width (at basal third of head) somewhat more than 0.8 its greatest width; cheeks rounded abruptly to eyes, converging almost straightly to middle and then diverging almost straightly to basal collar, thus noticeably concave; dorsal surface elevated medially, polygonally reticulate in about lateral thirds of posterior half, smooth elsewhere; vertex subconically produced, overhanging; postocular setae brownish yellow, dilated at tip, about 114 μ long, 176 apart, and 34 from eyes; other cephalic setae nearly colorless and pointed, those toward midline very slender. Eyes somewhat flattened laterally (because of a projecting, enlarged facet), 98 μ long dorsally, about 80 wide and 95 apart. Ocelli 30-33 μ in diameter, the median one directed forward and overhanging, its posterior margin about on a line with front margin of eyes; posterior ocelli about 34 μ apart and 24 from median ocellus. Antennae typical, 8-segmented, but with the last segment conical and compactly united with the preceding one, though separated by a complete, straight, transverse suture; sense-cones normal, long, slender, curved, and pointed, III 1 (2), IV 2 (2), V and VI each 1 (1), the outer upper ones on III and IV 67 and 71 μ respectively. Mouth-cone heavy, broadly rounded, extending about 163 μ beyond posterior dorsal margin of head.

Prothorax with median dorsal line of pronotum only 0.42 that of head and contained in the trans-coxal width nearly 2.8 times, its surface without sculpture except for a few indistinct striae along posterior margin, midline with a mere trace of apodeme; all major setae present, brownish yellow, broadened at tip, antero-marginals 66 μ, antero-angulars 65, midlaterals 79, epimerals 102, postero-marginals 107, coxals 59. Pterothorax normal narrower than prothorax across coxae; metanotum faintly longitudinally striate on sides of elevated median area. Legs normal, fore tarsi strongly toothed. Fore wings normal, 1.09 mm. long, very slightly broader subapically than elsewhere, with 12-13 accessory setae, the subbasal setae dilated apically and 49-66, 90-92, and 109-116 μ long, respectively.

Abdomen narrower than prothorax across coxae; median tergite of segment I with two pores, its surface faintly subreticulate, other terga nearly perfectly smooth; setae brownish yellow, terminal setae brown; seta II on VIII, III on III-VIII, I-III on IX, and

terminal setae, all finely pointed, the others knobbed; I and III on IX 230 μ, II 253 μ, terminal setae 225. Tube heavily sclerotized, smooth, about 0.6 the length of head, 2.3 times as long as width across basal collar, this width fully 2.3 times the apical width; sides very slightly concave at basal pores and tapering nearly straightly to the somewhat constricted apex.

Measurements of female (holotype), in mm.: Length about 2.34 (distended, 2.96). Head, length 0.405, width across eyes 0.255, greatest width across cheeks 0.268, least width (at basal third) 0.225, width across basal collar 0.238. Prothorax, median length of pronotum 0.170, greatest width (inclusive of coxae) 0.435; mesothorax, width across anterior angles 0.375, greatest width 0.392; metathorax, greatest width posteriorly 0.365. Abdomen, greatest width (at segment II) 0.378; tube (X, only), length 0.248, width across basal collar 0.107, greatest subbasal width 0.103, least apical width 0.046.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	64	80	103	98	89	78	60	34
Width (μ):	53	40	49	49	42	38	32	23

Total length of antenna, 0.606 mm.

Brasil: Belém, Pará, July 26, 1951, J.D.H., 1 ♀, from dead branches of *Hevea*.

This species is allied to *graminicola,* which, together with *xanthopus* and *bellulus,* belongs in a group defined by the first three characters mentioned in the last paragraph of the description of *bellulus,* above. Like *graminicola, buccalis* has the antennae and tube more slender and the third antennal segment much longer than the other species mentioned; but the two differ markedly in their very differently shaped heads, the cheeks of *graminicola* being convex, instead of concave.

Adelothrips cornutus, sp. nov.

(Fig. 168)

Female (macropterous). — Length about 2.7 mm. (distended, 3.5 mm.). Color yellow, with red internal pigmentation; head dark brown between and in front of eyes, mesothorax dark brown, the remainder of head and thorax, and the first abdominal segment, almost clear yellow; abdomen more deeply yellow apically, segments II-IX shaded with gray-brown anteriorly, especially in anterior angles, II, VII, and VIII darkest and more heavily underlain with red, the tube brownish orange, gray in apical seventh, and yellow across base and just before the gray apex; fore femora

yellow and concolorous with head, with a brown cloud on inner surface; middle and hind femora gray brown (the hind pair darker), but yellow at either end, where they are concolorous with their tibiae and tarsi; antennae yellow in segments I-III, basal half of IV, and basal third of V, excepting the darkened basal half of pedicel of V, the remainder of antennae nearly uniform dark brown; fore wings dark gray in anal lobe and grayish yellow beyond, with a dark cloud just before middle.

Head (Fig. 168) about 1.3 times as long as width across eyes and more than 1.2 times as long as greatest width across cheeks (which is just behind outer angles of eyes), its least width (just in front of basal collar) somewhat more than 0.8 its greatest width; cheeks convex, rounded abruptly to eyes and more gently to basal collar; dorsal surface elevated medially behind eyes, polygonally reticulate in posterior half, except for median fourth or fifth, smooth elsewhere; vertex transverse, not at all produced or overhanging, but nearly vertical in front; postocular setae yellow, paler apically, dilated at tip, about 106 μ long, 234 apart, and 36 from eyes; frontal setae enlarged (55-60 μ long) and knobbed, arising about on a line with median ocellus, and 103 μ apart; other cephalic setae colorless and pointed, those toward midline very slender. Eyes just perceptibly flattened laterally (because of a projecting, enlarged facet), fully 89 μ long dorsally, and about 73 wide and 135 apart. Ocelli 27-33 μ in diameter, the median one directed forward and overhanging, about on a line with anterior margin of eyes; posterior ocelli about 43 μ apart and 33 from median ocellus. Antennae typical, 8-segmented, but with the last segment conical and compactly united with the preceding one, though separated by a complete suture; sense-cones normal, long, slender, curved, and pointed, III 1 (2), IV 2 (2), V and VI each 1 (1), the outer upper ones on III and IV about 54 μ long. Mouth-cone heavy, broadly rounded.

Prothorax with median dorsal line of pronotum about 0.6 that of head and contained in the trans-coxal width about 2.2 times, its surface without sculpture except for a few indistinct striae along posterior margin, midline with a short distinct apodeme; all major setae present, yellow, broadened at tip, antero-marginals 65, antero-angulars 68, midlaterals 85, epimerals III, postero-marginals 108, coxals 83. Pterothorax normal, narrower than prothorax across coxae. Legs normal, fore tarsi strongly toothed. Fore wings normal, 1.25 mm. long, of equal width throughout, and with 9-11 accessory setae, the subbasal setae dilated apically and respectively 74, 88 and 109 μ long.

Abdomen narrower than prothorax across coxae; median tergite of segment I without pores, its surface faintly polygonally reticulate; other terga with faint sculpture; setae yellow, terminal setae brown; seta II on VII, lowermost on II-VIII, all on IX, and the terminal ones, with finely drawn-out points, the others knobbed; I on IX 165 μ, II 252, III 196. Tube heavily sclerotized, with indistinct transverse anastomosing striae, about 0.7 the length of head, 2.2 times as long as width across basal collar, this width nearly 2.3 times the apical width; sides slightly concave at middle, strongly converging apically.

Measurements of female (holotype), in mm.: Length about 2.66 (fully distended, 3.48). Head, length 0.370, width across eyes 0.281, greatest width across cheeks 0.301, least width near base 0.244, width across basal collar 0.251. Prothorax, median length of pronotum 0.224, greatest width (inclusive of coxae) 0.497; mesothorax, width across anterior angles 0.416, greatest width posteriorly 0.416. Abdomen, greatest width (at segment III) 0.462; tube (X only), length 0.252, width across basal collar 0.114, greatest subbasal width 0.110, least apical width 0.050.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	60	80	100	104	87	80	59	35
Width (μ):	59	43	46	46	40	37	30	20

Total length of antenna, 0.605 mm.

Male (macropterous). — Very similar to female in color and structure; allotype with head darkened in all of anterior half and fore femora more heavily and extensively shaded with gray; all setae much shorter, the frontal setae similarly knobbed, 41-46 μ long and about 70 apart.

Measurements of male (allotype), in mm.: Length about 1.25 (distended, 1.75). Head, length 0.300, width across eyes 0.209, greatest width across cheeks 0.221, least width near base 0.175, width across basal collar 0.181; eyes, dorsal length 0.079, dorsal width 0.056, dorsal interval 0.097; postocular setae, length 0.084, interval 0.182, distance from eyes 0.029; mouth-cone, length beyond posterior dorsal margin of head 0.130. Prothorax, median length of pronotum 0.140, greatest width (inclusive of coxae) 0,335, antero-marginal setae, length 0.048, antero-angulars 0.050, midlaterals 0.062, epimerals 0.075, postero-marginals 0.077, coxals 0.050; mesothorax, width across anterior angles 0.297, greatest width 0.312; metathorax, greatest width posteriorly 0.297, fore wings, length 0.896. Abdomen, greatest width (at segment III) 0.304; tube (X only), length 0.162, width across basal collar 0.083, greatest subbasal width 0.086, least apical width 0.043; seta I on segment IX 0.120, II 0.052, III 0.170; terminal setae, length 0.231.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	44	63	75	80	68	62	51	32
Width (μ):	44	34	37	37	34	31	25	17

Total length of antenna, 0.475 mm.

Brasil: Nova Teutônia, S.C., December 31, 1948, 1 ♀ (holotype), and May 1949, 1 ♂ (allotype), both from dead branches, coll. by Fritz Plaumann.

This species is unique in having the frontal setae enlarged and knobbed. It is a true *Adelothrips,* however.

Genus *GASTROTHRIPS* Hood, 1912. ([14])

Gastrothrips procerus, sp. nov.

(Fig. 169)

Female (macropterous). — Length about 1.8 mm. (distended, 2.2. mm.). Color blackish brown, with tube nearly coal black save for its paler base and apex; legs nearly concolorous with body, with tips of all femora and the mid and hind tarsi paler, the fore tibiae yellowish but shaded nearly to tip, the fore tarsi yellow; antennae with segments I and II blackish brown, I slightly paler basally than head, II nearly yellow medially in apical portion, III brown but yellow in pedicel and paler again at middle, IV-VIII darkest and nearly black; wings pale brownish, darkened basally, especially in anal lobe.

Head (Fig. 169) about 1.46 times as long as greatest width across eyes, this dimension almost exactly equal to the width across cheeks at middle, the latter evenly and slightly arcuate from behind eyes to near basal collar, where it is narrowest, produced 13-14 μ in front of eyes, sides of the process straight and parallel, its width 97 μ; vertex somewhat conical in dorsal aspect, but not overhanging; surface lightly cross-striate at sides, the cheeks thus somewhat serrate; postocular setae brown, rounded at tip, 74 μ long, 122 apart, and averaging 14 from eyes; all other cephalic setae small, slender, pointed. Eyes normal, not protruding, margined behind ocelli and posteriorly with a dark chitinous line, about one-third the length of head (87 μ), only 50 wide, 83 apart, ventral width somewhat less, facets at outer posterior angles not enlarged. Ocelli small (11-13 μ in diameter) and well separated, the posterior pair 69 μ apart and 47 from mediam ocellus, this last with

([14]) *Gastrothrips mandiocae* (Moulton), comb. nov., was described in the genus *Dichaetothrips* in 1941. *Gastrothrips oeceticola* De Santis, 1943, which I fully described and illustrated in Rev. Ent., 21 (1-2) :22, Pl. III, Figs. 51-55, 1950, is synonymous with (new synonymy). I have studied the holotype of *mandiocae* and compared it with the paratype of *oeceticola.*

anterior margin about 17 μ in advance of that of eyes. ANTENNAE typical, segment formed much as illustrated for *G. acuticornis,* but with VIII especially slender (nearly four times as long as wide) and constricted near base; segment III with two sense-cones (one on either surface), IV with three (one of them ventral), V with two.

PROTHORAX across coxae 1.9 times as wide as median length of pronotum, which is nearly 0.6 the length of head; pronotum with anterior margin not thickened and without apodeme at middle, surface smooth save for a few dark lines along posterior margin; major setae all present, dark brown, pale and rounded at tip, antero-marginals 33 μ, antero-angulars 41, midlaterals 42, epimerals 80, postero-marginals 80, coxals 43. FORE WINGS typical, with 5-8 accessory setae, the two major subbasal setae 50 and 44 μ respectively. FORE TARSI not toothed.

Abdomen normal; setae on IX and the terminal ones, pointed, all other major ones rounded (but not dilated) at tip, I on IX 149 μ, II 155, III 164, terminal 144; tube (X only) 0.6 the length of head, twice as long as width near base, this basal width twice the apical, sides nearly straight but tapering slightly more rapidly in apical third, apex not constricted, surface not ridged.

MEASUREMENTS of female (holotype), in mm.: Length about 1.8 (fully distended, 2.24). Head, length 0.266, width across eyes 0.182, least width just behind eyes 0.176, greatest width across cheeks 0.181, least width near base 0.164, width across basal collar 0.165. Prothorax, median length of pronotum 0.153, greatest width (inclusive of coxae) 0.294; mesothorax, width across anterior angles 0.316, greatest width 0.335; metathorax, greatest width 0.323. Abdomen, greatest width (at segment VI) 0.430; tube (X, only), length 0.160, greatest subbasal width 0.080, least apical width 0.041.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	49	60	77	74	73	66	47	45
Width (μ):	42	37	33	34	33	30	24	12

Total length of antenna, 0.491 mm.

BRASIL: Nova Teutônia, S.C., May, 1949, Fritz Plaumann, 1 ♀ (holotype), from dry branches.

The lack of a tarsal tooth and of an apical constriction in the tube, the long head, and the sense-cone arrangement define this species fully. In a systematic arrangement it belongs with *acuticornis.*

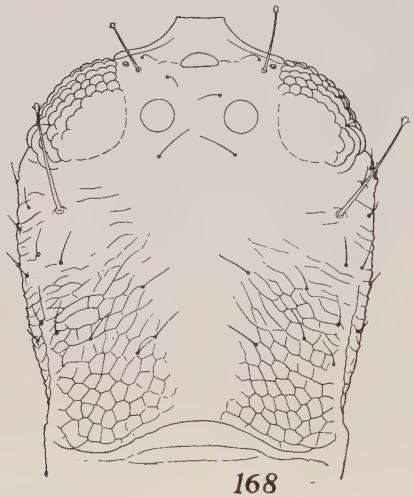
Genus *ALLOTHRIPS*,
Allothrips brasilianus, sp. nov.

(Fig. 170)

Female (apterous). — Length about 1.4 mm. (fully distended, 1.8 mm.). Color brown, with red internal pigmentation; head and tube largely yellow, the former shaded with brown in anterior third and darkest in front of eyes, the tube brighter than head and with apical eighth abruptly gray, pterothorax paler than prothorax, abdomen gradually darkening through segment IX; legs yellow, femora lightly shaded with brown; antennae yellow in segment II, largely brown in remainder, V-VII uniform dark brown, I as dark as IV but almost clear yellow across base, II with pedicel lightly brownish, III yellow in pedicel and brownish yellow in third fourth, IV much darker but somewhat paler at middle.

Head (Fig. 170) fully 1.3 times as long as greatest width, which is at about middle of cheeks, the latter scarcely serrate in dorsal aspect, evenly rounded to eyes and more gradually rounded to basal collar; vertex rounded, narrowed medially, and sloping steeply downward, its surface with a few faint lines of sculpture and with the usual pair of large frontal setae, these about 39μ long and 69 apart, their tips broadly expanded and finely divided; postocular setae similarly dilated at tip, 50 μ long, 125 apart, and arising about 9 μ behind eyes; occipital setae (one not fully developed in type) similar to postoculars, 25 μ long, 48 apart, and arising 115-120 μ from posterior margin of head; a fourth pair of similar setae, 33-36 μ long, arising just lateral of the large posterior facet of eyes; cheeks with several pairs of minute pale setae, all of them pointed; dorsal surface of head delicately polygonally reticulate across base and with a few transverse striae on sides in front of this reticulated area. Eyes not protruding, about one-fourth the length of head, their dorsal length and interval respectively 52 and 94 μ, consisting of six facets, the two posterior dorsal ones largest, only two contributing to outline of dorsal aspect of head. Ocelli wanting. Antennae normal for the genus; sense-cones long and slender, that on inner surface of IV about 27 μ long, III-V each with a major cone on either surface, VI with a major one only on inner surface. VI with a major one only on inner surface. Mouth-cone normal, heavy, broadly rounded at tip, and extending about 126 μ beyond posterior dorsal margin of head.

Prothorax along median line of pronotum about 0.56 the length of head and (inclusive of coxae) 2.28 times as wide as long, without median apodeme, its surface with two or three faint striae along posterior margin, only; major setae all present, formed like



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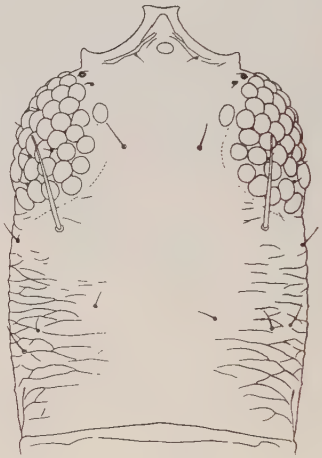

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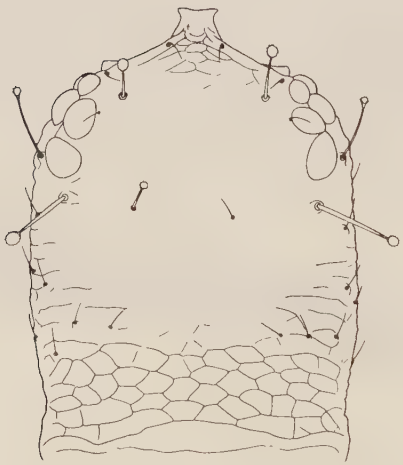

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168. - *Adelothrips cornutus,* sp. nov.; head; ♀, holotype; x 159; 169 - *Gastrothrips procerus,* sp. nov.; head; ♀, holotype; x 224; 170 - *Allothrips brasilianus,* sp. nov.; head; ♀, holotype; x 271; 171 - *Rhynchothrips nigriculus,* sp. nov.; segment III of right antenna; ♀, holotype; x 509; 172 - *R. capnodes,* sp. nov.; segment III of right antenna; ♀, holotype; x 509.

postoculars, the two pairs on anterior margin 40.42 μ, coxals 34, the others 48-50, the pair of setae between postero-marginals pointed and very minute. Mesothorax with only three pairs of large apically-dilated setae on notum, the median pair of setae on posterior margin very minute and pointed. Legs normal, fore tarsi not toothed.

Abdomen normal, broader than pterothorax; median tergite of segment I with two pores, behind which is a dark line of sculpture followed by finer dark lines which break up the posterior part of the sclerite into distinct transverse polygons, quadrilaterals, and triangles; major setae broadly expanded at tip, excepting only seta III on VII-IX and the terminal setae, setae I and II on IX thus expanded, the former of these 70 μ, the latter 87, seta III 104, terminals 150; tube (segment X, only) one-half the length of head and about 1.4 times as long as greatest subbasal width, the apical width less than one-half as great; sides straight from near base to near tip, then slightly flaring, the walls heavy (5 μ thick).

Measurements of female (holotype), in mm.: Length about 1.40 (distended, 1.82). Head, length 0.217, width across eyes 0.140, greatest width across cheeks 0.163, least width near base 0.148, width across basal collar 0.152. Prothorax, median length of pronotum 0.121, greatest width (inclusive of coxae) 0.276; mesothorax, width across anterior angles 0.248, greatest width 0.249; metathorax, greatest width 0.242. Abdomen, greatest width (at segment III) 0.330; tube (X, only), length 0.110, greatest subbasal width 0.077, least apical width 0.034.

Antennal segments:	I	II	III	IV	V	VI	VII
Length (μ):	46	64	59	49	45	43	64
Width (μ):	42	36	35	36	33	30	27

Total length of antenna, 0.370 mm.

Brasil: Jacarepaguá, D.F., May 19, 1948, J.D.H., and Dr. Thomaz Borgmeier, 1 ♀, from dead branches.

This is the only species of the genus, excepting *africanus* Faure, which has the tube much shorter than the head, the eyes of the apterous form composed of only 5 or 6 facets, the posterior margin of the pronotum with the two setae between the postero-marginals minute and pointed, and the mesonotum with three pairs of knobbed setae. The two should be readily separable by the less-produced head of *brasilianus,* as well as its thick-walled tube and the knobbed nature of seta II on the ninth abdominal segment.

Genus *RHYNCHOTHRIPS* Hood, 1912. ([15])

Rhynchothrips nigriculus, sp. nov.

(Fig. 171)

FEMALE (macropterous). — Length about 1.8 mm. (distended, about 2.3 mm.). COLOR nearly uniform blackish brown or black; tube paler in apical half and across base; legs concolorous with body, tips of all femora pale whitish yellow but with a dark cloud extending along the morphologically dorsal surface to tips; antennae blackish brown, but with segment I sometimes paler than the others, II yellowish apically, III with pedicel pale yellow and nearly black just beyond; fore wings dark brown basally, paler apically, and with a pale streak paralleling posterior margin in about apical two-fifths; hind wings dark at base and very pale brown beyond, sometimes with posterior half and anterior margin slightly darkened.

HEAD slightly longer than greatest width, which is across cheeks at hind margin of eyes; ocellar area reticulate with dark lines, sides and base of head indistinctly cross-striate; cheeks finely but distinctly serrate, forming an even curve with outline of eyes, gently rounded to a slight basal collar; postocular setae nearly black, tapering only slightly, divided and somewhat broadened at tip, 62 μ long, 131 apart, and 17 from eyes; other setae minute and pointed. EYES no at all protruding laterally, their front margins extending over bases of antennae, dorsal length 85 μ, width 75, interval only 59, their ventral length somewhat less. MEDIAN OCELLUS overhanging, directed forward, its front margin about on a line with that of eyes. MOUTH-CONE long, pointed, extending beyond base of prosternum, its length beyond posterior dorsal margin of head about 262 μ. ANTENNAE slender, segment III (Fig. 171) nearly 3.3 times as long as wide; sense-cones short, straight, and slender, arranged 1(2) on III-V.

PROTHORAX along median line of pronotum about two-thirds the length of head, about 2.2 times as broad across coxae as long, epimeron largely fused with notum; surface smooth and shining, except for a heavy dark stria paralleling posterior margin and a few distinct striae behind it in lateral thirds; antero-marginal setae minute (about 14 μ), others nearly black, tapering only slightly, divided and slightly dilated at tip, antero-angulars and midlaterals 43-46 μ, epimerals 84, postero-marginals 63, coxals 57. PTEROTHORAX normal; mesonotum cross-striate anteriorly, smooth poste-

([15]) *Rhynchothrips tertius* (Faure), comb. nov.; referred from *Neothrips* Hood, 1908. This is not a *Neothrips*, certainly, and is far better placed in *Rhynchothrips*, at least for the present.

riorly; metanotum closely longitudinally striate except at sides, the striae about 4 μ apart and paler than the reticles. Fore wings normal, with 8-10 accessory setae on posterior margin, the subbasal setae formed and colored like postoculars and prothoracics, about 50, 42, and 60 μ, respectively. Legs normal, femora finely but distinctly cross-striate, fore pair short and rather stout, fore tarsi unarmed.

Abdomen normal, with intermediate sterna longer than terga, its breadth much greater than that of thorax; setae dark, lowermost on VII-IX somewhat paler, most of them slightly dilated but not divided at tip, segment IX with seta I 112 μ and pointed, II 106 and very slightly dilated, III 126 and pointed; tube about two-thirds the length of head, about twice as long as breadth near base, this width about twice the apical; terminal setae 174 μ, longer than tube.

Measurements of female (holotype), in mm.: Length about 1.76 (distended, 2.23). Head, total length 0.231, width across eyes 0.209, greatest width across cheeks 0.223, width in front of basal collar 0.188, width across basal collar 0.189, width at base 0.174, width at base of antennae 0.094, width of frontal costa 0.010. Prothorax, median length of pronotum 0.152 (0.168 in paratype), width across coxae 0.330 (0.364 in paratype). Mesothorax, greatest width across anterior angles 0.351 (0.378 in paratype); metathorax, greatest width posteriorly 0.360. Fore wings, length 0.833. Abdomen, greatest width (at segment IV) 0.463; tube (segment X, only), length 0.156, width across basal collar 0.079, greatest subbasal width 0.077, apical width 0.037.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	45	60	82	67	69	58	50	29
Width (μ):	43	30	25	28	27	26	22	12

Total length of antenna, 0.460 mm.

Male (macropterous). — Like female in color and very similar to it in structure; sense-cones as in female; sternum VIII with three glandular areas, one traversing it near posterior margin, the other two closely paralleling anterior margin but not meeting medially.

Measurements of male (allotype), in mm.: Length about 1.69. Head, total length 0.199, width across eyes 0.181, greatest width across cheeks 0.188, width in front of basal collar 0.150, width across basal collar 0.151, width at base 0.141, width at base of antennae 0.077. Eyes, dorsal length 0.075, width 0.067, interval 0.048. Postocular setae, length 0.053, interval 0.103, distance from eyes 0.013. Mouth-cone, length beyond posterior dorsal

margin of head 0.181 (0.211 in paratype). Prothorax, median length of pronotum 0.121, width across coxae 0.279, antero-marginal setae 0.014, antero-angulars 0.030, midlaterals 0.032, epimerals 0.064, postero-marginals 0.038, coxals 0.041. Mesothorax, width across anterior angles 0.272. Metathorax, greatest width posteriorly, 0.274. Fore wings, length 0.658. Abdomen, greatest width (at segment IV) 0.297; tube (segment X, only), length 0.121, greatest subbasal width 0.064, apical width 0.034; segment IX, seta I 0.105, II 0.104, III 0.137; terminal setae 0.140.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	37	50	63	54	57	53	44	31
Width (μ):	36	26	25	26	24	23	20	10

Total length of antenna, 0.389 mm.

Brasil: Boracéia, Munic. de Salesópolis, S.P., June 7, 1948, J.D.H., 2 ♀♀ (including holotype) and 2 ♂♂ (including allotype), from dead branches.

Readily known from all New World congeners, excepting only the following species, by the slender, nearly black antennae. Distinguished from it by the minute antero-marginal setae, the slenderer third antennal segment with sense-cone formula 1 (2) instead of 0 (1), and the closely longitudinally striate metanotum, whose striae are paler than the reticles and about 4 μ apart.

Rhynchothrips capnodes, sp. nov.

(Fig. 172)

Female (macropterous). — Length about 1.7 mm. (distended, about 2.3 mm.). Color nearly uniform blackish brown or black; tube paler in about apical half, legs about concolorous with body, but with tips of all femora pale whitish yellow, with a dark cloud extending along the morphologically dorsal surface to end; antennae blackish brown, segment II paler apically, III yellow in pedicel and nearly black just beyond; fore wings dark brown basally, paler apically, and with a pale streak paralleling posterior margin in about apical third; hind wings dark at base and paler beyond, slightly clouded at tip.

Head slightly longer than greatest width, which is across cheeks shortly behind eyes; ocellar area faintly reticulate with dark lines, base of head indistinctly cross-striate; cheeks nearly smooth, though finely serrate basally, convexly tapering to a slight basal collar and rounded to eyes, where there is a slight notch; postocular setae nearly black, tapering to a divided and distinctly expanded tip, 70 μ long, 120 apart, and 16 from eyes; other setae minute and pointed. Eyes somewhat protruding both posteriorly and an-

teriorly, their front margins extending over bases of antennae, dorsal length 75 μ, dorsal width 67, interval only 56, their ventral length somewhat less. Median ocellus overhanging, directed forward, its front margin about on a line with that of eyes. Mouth-cone long, pointed, extending beyond base of prosternum, its length beyond posterior dorsal margin of head about 297 μ. Antennae slender, segment III (Fig. 172) about 2.7 times as long as wide; sense-cones short, straight, and slender, segment III without sense-cone on inner surface and only one on outer, IV and V each 1 (2).

Prothorax along median line of pronotum about three-fourths the length of head, about 2.1 times as broad across coxae as long, epimeron largely fused with notum; surface smooth and shining, except for a heavy dark stria paralleling posterior margin and a few delicate striae near it in lateral thirds; major setae nearly black, divided and dilated at tip, antero-marginals 28 μ, antero-angulars 40, midlaterals 52, epimerals 69, postero-marginals 59, coxals 45. Pterothorax normal; mesonotum cross-striate anteriorly, smooth posteriorly; metanotum striate with fine dark lines which form a polygonal reticulation in median portion of base, but which are longitudinally arranged elsewhere, where the striae are about 6 μ apart and darker than the reticles which they form. Fore wings normal, with 5-7 accessory setae on posterior margin, the subbasal setae formed and colored like prothoracics and 36, 34, and 52 μ long, respectively. Legs normal, femora finely cross-striate, fore pair short and rather stout, fore tarsi unarmed.

Abdomen normal, with intermediate sterna longer than terga, its breadth much greater than that of thorax; setae mostly dilated but not divided at apex, those on segments I-V nearly black, the lowermost pair on VI, two lower pairs on VII and VIII, and all three pairs on IX, brownish yellow and much paler, IX with setae I and III pointed, II distinctly dilated, I 118 μ, II 107, III 97; tube little more than 0.6 the length of head, scarcely twice as long as breadth near base, this width less than twice the apical; terminal setae 174 μ, longer than tube.

Measurements of female (holotype), in mm.: Length about 1.74 (distended, 2.27). Head, total length 0.214, width across eyes 0.189, least width just behind eyes 0.186, greatest width across cheeks 0.197, least width in front of basal collar 0.167, width across basal collar 0.169, width at base 0.162, width at base of antennae 0.090, width of frontal costa 0.010. Prothorax, median length of pronotum 0.160, width across coxae 0.337. Mesothorax, width across anterior angles 0.336; metathorax, greatest width posteriorly 0.342. Fore wings, length 0.700. Abdomen, greatest width (at segment IV) 0.468; tube (segment X, only), length 0.134,

width across basal collar 0.077, greatest, subbasal width 0.075, apical width 0.041.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	44	55	70	64	66	57	51	32
Width (μ):	43	31	26	29	27	26	23	12

Total length of antenna, 0.439 mm.

Brasil: Boracéia, Munic. de Salesópolis, S.P., June 8, 1948, J.D.H., 1 ♀ (holotype), from dead branches.

Very close to *nigriculus,* described above, with slender black antennae; but with antero-marginal prothoracic setae well developed, antennal segments less slender, segment III of antennae less than three times as long as wide and with sense-cone formula 0 (1), and metanotum more delicately and widely striate, the striae darker than the reticles and about 6 μ apart.

Genus *POLYPHEMOTHRIPS,*
Polyphemothrips dotatus, sp. nov.

(Fig. 173)

Female (macropterous). — Length about 4.1 mm. (distended, 4.9 mm.). Color dark blackish brown, with abundant red internal pigmentation; legs about concolorous with body, but with fore tarsi nearly yellow; antennae uniform dark blackish brown in segments I and IV-VII, III brown but fading to yellow apically, III yellow but with a small dark cloud on outer surface just before the first whorl of setae and with apex clouded; fore wings brown in anal lobe, very pale brown beyond, narrowly and slightly darkened along margins beyond basal fifth, the hind margin with a dark area which extends to midline of wings in remainder of basal third and whose front margin is continued as a narrow darkish line ending at middle of wing.

Head about 1.74 times as long as width across eyes more than 1.8 times its width at base, the latter width much less than the greatest width across cheeks shortly behind eyes, formed much as illustrated for *P. yupanqui* (see Hood, Rev. Ent., 7 (4):511), prominently elevated along median line, its dorso-lateral surfaces sloping concavely downward; vertex broadly rounded in front, attaining front of head and overhanging; cheeks decidedly swollen in ventral anterior portion just behind eyes, with several short yellow setae arising from slight tubercles, its entire surface without distinct sculpture; postocular setae colorless, pointed, about 271 μ long and 216 apart. Eyes about 0.23 the length of head, strongly protruding (especially posteriorly), with the usual large facets at

outer posterior angles, and thus with lateral outline concave in dorsal aspect. Ocelli (Fig. 173) anterior in position, the median one directed forward and with its posterior margin directly above frontal costa, the posterior ocelli with front margin about on a line with that of eyes. Antennae (Fig. 173) 7-segmented, segment III somewhat shorter than both IV and VII, the last 4.4. times as long as wide and with trace of ventral transverse suture; sense-cones long, slender, curved, and pointed, unusually disposed in that segment III has two (instead of one) on inner surface, their formula as follows; III 2 (2), IV 2 (2), V and VI each 1 (1). Mouth-cone broad and heavy, extending far beyond middle of prosternum, its length beyond posterior dorsal margin of head about 322 μ, its tip semicircularly rounded.

Prothorax with midline of pronotum about one-half the length of head and contained in the trans-coxal width 2.0 times; pronotum smooth; all major setae present, very long, colorless, somewhat dully pointed, antero-marginals 189 μ, antero-angulars and midlaterals 252, epimerals 155, postero-marginals 284, coxals 168. Pterothorax distinctly narrower than the width across fore coxae. Fore wings 2.03 mm. long, width 35-36 accessory setae, and with the four colorless subbasal setae dully pointed and respectively 133, 171, 185, and 147 μ. Legs normal, slender; fore tarsal tooth stout, curved backward.

Abdomen normal, its dorsal surface nearly smooth; tube (segment X, only) about 0.8 the length of head and 3.6 times as long as greatest subbasal width, the last 2.3 times the least apical width, its sides tapering straightly in about basal half and somewhat convexly to near tip, where sides are slightly concave; major abdominal setae long, nearly colorless, those on the more apical segments yellow basally, terminal ones largely brown, seta I measuring as follows (in microns) on the successive segments: II 322, III 271, IV 241, V 217, VI 207, VII 211; seta I on IX 589, II 549, III 476; terminal setae 294.

Measurements of female (holotype), in mm.: Length about 4.06 (fully distended, 4.91). Head, length 0.647, width across eyes 0.371, least width just behind eyes 0.329, greatest width across cheeks 0.375, least width near base 0.321, width across basal collar 0.350. Prothorax, median length of pronotum 0.333, greatest width (inclusive of coxae) 0.669, mesothorax, width across anterior angles 0.612, greatest width 0.619; metathorax, greatest width 0.560. Abdomen, greatest width (at segments II and III) 0.644; tube (X, only) length 0.529, greatest subbasal width 0.147, least apical width 0.064.

Antennal segments:	I	II	III	IV	V	VI	VII
Length (μ):	105	112	185	195	186	154	190
Width (μ):	75	54	75	68	63	50	43

Total length of antenna, 1.127 mm.

BRASIL: Belém, Pará, July 25, 1951, J.D.H., 1 ♀, from dead branches of felled *Hevea*.

This is the only species now assigned to the genus which has two sense-cones on the inner surface of the third antennal segment, all of the others having one, only. In other ways the species agrees closely with the Peruvian *yupanqui*. The two are readily separable on the basis of the nearly colorless postocular and prothoracic setae of *dotatus* (in *yupanqui* they are dark brown), the much longer setae in all parts of the body (in the present species, for example, the antero-angulars and midlaterals are about 252 μ long, in comparison with 52-53 μ in *yupanqui*), and the much longer and slenderer terminal antennal segment (in *dotatus* it is somewhat longer than the third segment and more than four times as long as wide, while in *yupanqui* it is much shorter than the third and less than four times as long as wide). Differences in the form of the antennal segments of the two species are conspicuous, too, as may be noted by comparing illustrations.

Genus *PSALIDOTHRIPS* Priesner

It is interesting that this genus, described in 1932 on the basis of a single Javanese species collected in 1921, and known only from the type or types, should now be added to the New World fauna, particularly as the addition is based on four new species taken in a limited area. Dr. Priesner has examined the first three of the species described below and has pronounced them close to the type species. In living or preserved specimens, one is impressed by the flatness of the body — particularly of the head.

Psalidothrips conciliatus, sp. nov.

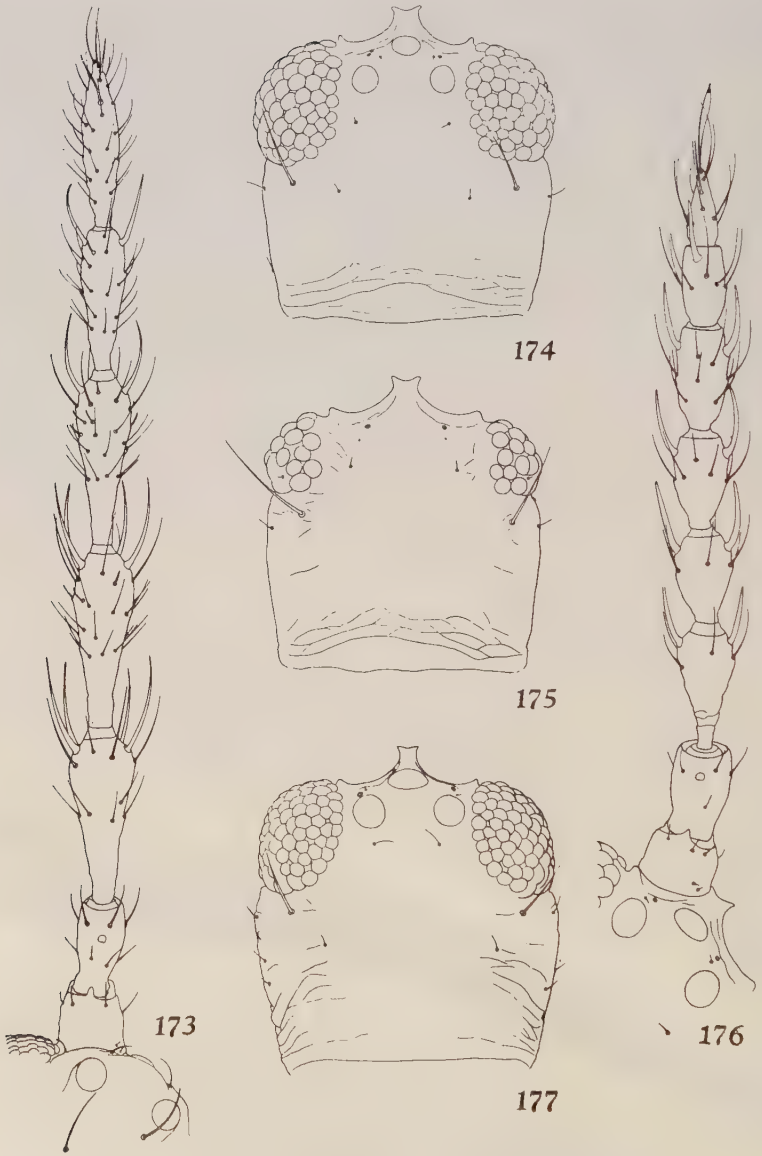
(Figs. 174-176)

FEMALE, forma macroptera. — Length about 1.4 mm. (distended, 1.7 mm.). COLOR brownish yellow, with red internal pigmentation; head brown, darker anteriorly and laterally and much darker than rest of body; prothorax and mesothorax darkened throughout with brown, metathorax slightly darker at sides but otherwise clear yellow, abdomen yellow in segment I. II-VII lightly shaded with brown and successively slightly darker, III-VIII with a faint transverse gray cloud behind antecostal line, IX slightly pa-

ler than VIII, more yellowish, and shaded with gray across base; tube yellow, paler across base and in about apical two-fifths; legs yellow, with fore femora and, to some extent, the mid femora, slightly shaded; antennae concolorous with head in segments I, II, VII, and VIII, II yellow across apex pale medially, III yellow in basal fourth or more and shaded with gray beyond, IV-VI each nearly uniform gray-brown, VI darker than the others but paler than VII and VIII; fore wings nearly uniform light brown, darker in anal lobe, their apical two-thirds darkened medially and (just perceptibly) along margins.

Head (Fig. 174) only slightly longer than greatest width across eyes, this dimension appreciably greater than that across cheeks, the latter rounded rather abruptly to eyes from a point slightly behind the latter and tapering nearly evenly toward base, where the width is about 0.8 that across eyes, the width in front of eyes about one-half that at posterior angles of eyes; vertex rounded, scarcely overhanging; surface of head smooth and shining, with a few faint cross-striae at base, only, the occipital line complete but faint, the cheeks thus not serrate; postocular setae pale brown, pointed, about 52 μ long, 128 apart, and 12 from eyes; all other cephalic setae minute, pale, and pointed (see Fig. 174). Eyes typical of the genus, prominent and protruding, about 0.4 the length of head, in holotype 74 μ long, 54 wide, and 75 apart, coextensive ventrally. Ocelli 17-21 μ in diameter, the posterior pair 31-34 μ apart and 16 from median ocellus, this last with anterior margin overhanging and slightly in advance of that of eyes. Antennae (Fig. 176) typical, except that segments VII and VIII have broadened pedicels (13-14 μ across), which gives the last three segments the appearance of being closely joined; III-VI each with two sense-cones, only, one of which is on either surface of tip, the outer ones on III and IV about 33 μ long, all of them moderately slender and dully pointed. Mouth-cone short, broadly rounded, extending about 72 μ beyond posterior dorsal margin of head.

Prothorax across coxae 2.3 times as wide as median length of pronotum, which is 0.6 the length of head; pronotum without median apodeme, partially fused with epimeron, and without sculpture; antero-marginal and antero-angular setae vestigial (4 μ), the other setae pale brow and pointed, midlaterals 35, epimerals 41, postero-marginals 67, coxals 18, the postero-marginals twice as stout as epimerals. Fore wings typical, about 728 μ long, broadening to basal fourth and then narrowing to tip, without accessory hairs and with the subbasal setae very minute and pointed. Fore legs normal; fore femora about 57 μ across; fore tarsi not toothed.



Polyphemothrips and *Psalidothrips*

173 - *Polyphemothrips dotatus,* sp. nov.; left antenna; ♀, holotype; x 120; 174 - *Psalidothrips conciliatus,* sp. nov.; head; ♀, macropterous, paratype; x 224; 175 - Same; head; ♀, brachypterous, paratype; x 224; 176 - Same; left antenna; ♀, macropterous; paratype; x 271; 177 - *P. umbraticus,* sp. nov.; head; ♀, macropterous, paratype; x 224.

Abdomen almost perfectly smooth, distinctly sculptured only across base of tergum IX; seta I on I-VIII dilated or rounded at tip, all others pointed, I on IX 101 μ, II 107, III 91, terminal setae 110; tube (X, only) one-half the length of head, about 1.5 times as long as greatest width near base, this a trifle more than twice the apical width, very slightly broadened just beyond base, thence tapering straightly to tip, surface smooth.

Measurements of macropterous female (holotype), in mm.: Length about 1.39 (distended, 1.68). Head, length 0.189, width across eyes 0.183, just behind eyes 0.168, across cheeks 0.172, least width near base 0.143, width in front of eyes 0.083. Prothorax, median length of pronotum 0.114, width across coxae 0.263; mesothorax, width across anterior angles 0.273, greatest width 0.279; metathorax, greatest width 0.273. Abdomen, greatest width (at segment III) 0.274; tube (segment X, only), length 0.093, greatest subbasal width 0.060, least apical width 0.028.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	33	50	59	44	47	53	39	40
Width (μ):	36	30	28	29	30	27	23	16

Total length of antenna, 0.365 mm.

Female, forma brachyptera. — Color as in macropterous form; eyes much smaller (Fig. 175), but the distance across them nevertheless greater than that across cheeks; ocelli normally wanting.

Measurements of brachypterous female (morphotype), in mm.: Length about 1.44 (distended, 1.79). Head, length 0.179, width across eyes 0.167, greatest width across cheeks 0.163, least width just behind eyes 0.155, least width near base 0.143; eyes, dorsal length 0.051; postocular setae, length 0.053, interval 0.122, distance from eyes 0.012; mouth-cone, length beyond posterior dorsal margin of head 0.074. Prothorax, median length of pronotum 0.130, width across coxae 0.287; antero-marginal setae 0.004, antero-angular 0.004, midlateral 0.031, epimeral 0.043, postero-marginal 0.069, coxal 0.023; mesothorax, width across anterior angles 0.259, greatest width 0.267; metathorax, greatest width 0.253. Abdomen, greatest width 0.314; tube (segment X, only), length 0.092, greatest subbasal width 0.064, least apical width 0.028, terminal setae 0.114; seta I on IX 0.099, II 0.110, III 0.088.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	35	49	53	37	41	46	38	42
Width (μ):	39	29	27	29	30	27	23	16

Total length of antenna, 0.341 mm.

Male (brachypterous). — Color as in female; eyes reduced, the distance across them slightly less than that across cheeks; antennae stouter; fore femora not enlarged, fore tarsi with a stout tooth; seta II on abdominal segment IX somewhat shortened, stouter than I; sternum VIII with a complete glandular area crossing middle.

Measurements of male (allotype), in mm.: Length about 1.06 (distended, 1.29). Head, length 0.144, width across eyes 0.135, least width just behind eyes 0.134, greatest width across cheeks 0.137, least width near base 0.116; postocular setae, length 0.046, interval 0.106, distance from eyes 0.016; mouth-cone, length beyond posterior dorsal margin of head 0.052. Prothorax, median length of pronotum 0.101, width across coxae 0.227; midlateral setae 0.023, epimeral 0.026, postero-marginal 0.057; mesothorax, width across anterior angles 0.203, greatest width 0.207; metathorax, greatest width 0.204. Abdomen, greatest width (at segment II) 0.238; tube (segment X, only), length 0.066, greatest width near base 0.054, least apical width 0.027, terminal setae, length 0.094; seta I on IX, length 0.090, II 0.066, III 0.063.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	29	41	44	28	33	37	30	33
Width (μ):	33	26	22	24	26	26	22	14

Total length of antenna, 0.275 mm.

Brasil: Belém, Pará, August 8, 12 macropterous ♀'s (including holotype) and 4 brachypterous ♀'s (including morphotype), from *Heliconia psittacorum* and *Ravenala guianensis;* Aug. 8. 1 ♂ (allotype) and 2 brachypterous ♀'s, from *Astrocaryum mumbaca;* and Aug. 11, 1 macropterous ♀, from *Ravenala guianensis.* All specimens were taken in 1951, by the author, from dead leaves. [The specific name *mumbaca* was used above deliberately (though Martius spelled it *munbaca* in his original description) because it is based on the Indian name m u m b a c á , and that speling, with the accent mark omitted, is the one employed quite generally by Brasilian botanists].

The species is unique in the form of the last two antennal segments and in having only two sense-cones on each of segments III and IV of the antennae.

Psalidothrips umbraticus, sp. nov.

(Fig. 177)

Female (macropterous). — Length about 1.5 mm. (distended, 1.8 mm.). Color brownish yellow, with opaque yellow internal pigmentation; head brown, darker anteriorly and laterally;

metathorax laterally as dark as head, the prothorax, mesothorax, and dorsum of metathorax uniform brownish yellow; abdomen with segment II lightly shaded basally and at sides, darker than I or III, III-VI successively more heavily shaded across base and laterally, with a transverse gray dash behind antecostal line, VII-IX darker (VIII darkest), VII paler sublaterally, IX paler medially; tube yellow, paler across base and in about apical two-fifths, tipped with gray; legs nearly uniform yellow; antennae concolorous with head in segments I, II, and IV–VIII, I paler across base, II yellowish brown apically and medially, III yellow in pedicel and brown beyond, IV somewhat darker, VII and VIII darkest; fore wings nearly uniform light brown, darker in anal lobe and distal to the paler narrowed area beyond middle.

Head (Fig. 177) only slightly longer than width across eyes, this dimension a trifle less than that across cheeks, the latter narrowed sharply to eyes from a point distinctly behind postocular setae, often with anterior margin transverse and even with a slight tooth at the angle, tapering evenly to base, where the width is about 0.85 that across eyes, the width in front of eyes about one-half that at posterior angles of eyes; vertex scarcely overhanging; surface of head smooth and shining, with a few faint striae at sides and usually one interrupted one, only, at base, the occipital line thus not complete, the cheeks thus not serrate; postocular setae pale brown, pointed, about 59 μ long, 136 apart, and 9 from eyes; all other cephalic setae minute, pale, and pointed (see Fig. 177). Eyes typical of the genus, prominent and protruding, less than 0.4 the length of head, in one KOH — treated paratype with dorsal length 70 μ, width 52, interval 79, ventrally slightly shorter and narrower. Ocelli 20-23 μ in diameter, the posterior pair 31 apart and 13 from median ocellus, this last with anterior margin overhanging and distinctly in advance of that of eyes. Antennae typical, segments VII and VIII with pedicels not broadened (10-11 μ across), the last three segments thus not appearing to be joined; III with one sense-cone on inner surface, one on outer, and one on lower surface near middle of apex, IV 2 (2), V and VI each 1 (1), the outer ones on III and IV about 40 μ long, all of them slender and pointed. Mouth-cone short, broadly rounded, extending about 71 μ beyond posterior dorsal margin of head.

Prothorax across coxae 2.2 times median length of pronotum, which is more than 0.6 the length of head; pronotum with short median apodeme at middle, not fused with epimeron, and without sculpture; antero-marginal and antero-angular setae vestigial (3 μ), the other setae brownish yellow and pointed, midlaterals 32, epimerals 47, postero-marginals 84, coxals 34, the postero-marginals little stouter than epimerals. Fore wings typical,

about 763 μ long, broadened to basal fourth or somewhat beyond, much narrower in apical two-fifths, posterior margin without accessory setae, the subbasal setae pointed, the third of these about 32 μ, I, II, and IV minute. FORE LEGS normal; fore femora about 72 μ across; fore tarsi not toothed.

ABDOMEN almost perfectly smooth, distinctly sculptured only across base of tergum IX; seta I on VIII rounded at tip, all others pointed, I on IX 101 μ, II 110, III 100, terminal setae 133; tube (X, only) a little more than one-half the length of head, more than 1.4 times as long as greatest width near base, this 2.3 times the apical width, broadened to about basal sixth, thence tapering straightly to apex, surface smooth.

MEASUREMENTS of female (holotype), in mm.: Length about 1.49 (distended, 1.79). Head, length 0.195, width across eyes 0.179, least width at posterior angles of eyes 0.172, greatest width across cheeks 0.181, least width near base 0.152, width in front of eyes 0.084; eyes, dorsal length 0.067. Prothorax, median length of pronotum 0.129, width across coxae 0.287; mesothorax, width across anterior angles 0.290, greatest width 0.302; metathorax, greatest width 0.287. Abdomen, greatest width (at segment III) 0.293; tube (X, only), length 0.103, greatest subbasal width 0.070, least apical width 0.030.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	40	50	59	50	50	50	42	42
Width (μ):	39	30	30	30	29	27	23	15

Total length of antenna, 0.383 mm.

MALE (macropterous). — Color about as in female, but paler; structure very similar, sense-cones on antennae similarly disposed; fore femora scarcely enlarged; fore tarsi with a stout tooth; sternum VIII with a complete glandular area crossing middle.

MEASUREMENTS of male (allotype), in mm.: Length about 1.37 (distended, 1.62). Head, length 0.156, width across eyes 0.143, least width at posterior angles of eyes 0.140, greatest width across cheeks 0.147, least width near base (in front of basal collar) 0.133; eyes, dorsal length 0.055; postocular setae, length 0.055, interval 0.114, distance from eyes 0.009; mouth-cone, length beyond posterior dorsal margin of head 0.055. Prothorax, median length of pronotum 0.117, width across coxae 0.258, midlateral setae 0.026, epimeral 0.040, postero-marginal 0.062, coxal 0.029; mesothorax, width across anterior angles 0.238, width posteriorly 0.238; metathorax, greatest width 0.224; fore wings, length 0.552. Abdomen, greatest width (at segment II) 0.238;

tube (X, only), length 0.032, greatest subbasal width 0.058, least apical width 0.027, terminal setae 0.110; seta I on IX 0.077, II 0.070, III 0.052.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	36	43	45	37	40	43	34	37
Width (μ):	35	26	25	26	24	23	20	14

Total length of antenna, 0.315 mm.

Brasil: Belém, Pará, August 8 (1 ♂) and (13 ♀'s, including holotype, and 2 ♂'s, including allotype), 1951, J.D.H., from dead leaves of *Astrocaryum mumbaca,* in a dense capoeira.

Closely resembling *conciliatus,* but differing conspicuously in the number of sense-cones on the third and fourth antennal segments and in the form of the seventh and eighth segments. Many other differences are brought out in the descriptions.

Psalidothrips retifer, sp. nov.

(Figs. 178, 179)

Female, forma macroptera. — Length about 1.7 mm. (distended, 1.8 mm.). Color brownish yellow, with opaque yellow internal pigmentation, the head, thorax, and abdominal segment I evenly overlain with gray, II darkened in anterior half of lateral third or fourth, III-VIII each with a conspicuous dark arcuate band across base, largely limited behind by the antecostal line; tube yellow, paler basally and apically; legs yellow, the femora lightly shaded save at either end; antennae about concolorous with head, nearly uniform in color throughout, with apex of segment II and pedicel of III yellow; fore wings nearly uniform brown, paler briefly where narrowed just before apical third, costal margin somewhat darkened to that point, to which also extends a narrow post-median streak.

Head (Fig. 178) about 1.2 times as long as width across eyes, this dimension a trifle greater than that across cheeks; cheeks abruptly incised to eyes and either angulate or toothed at the incision, subparallel in rest of anterior third, convex and narrowed in second third, thence nearly parallel to base, where the width is more than 0.8 that across eyes, the width in front of eyes (90 μ) a little greater than one-half the least width at posterior angles of eyes; vertex transverse, slightly overhanging anteriorly; surface of head nearly smooth in ocellar area, its remainder lightly but distinctly cross-striate with lines which form polygonal reticles across base, the cheeks thus distinctly serrate throughout; occipital line complete; basal collar only slightly projecting; postocular setae

yellow, pointed, about 73 μ long, 143 apart, and 16 from eyes; all other cephalic setae minute, pale, and pointed. EYES typical of the genus, prominent and protruding, scarcely one-third the length of head, their dorsal length in holotype 72 μ, width 58, interval 87, scarcely shorter ventrally but slightly narrower. OCELLI about 22 μ in diameter, the posterior pair 36 apart and 17 from median ocellus, this last with anterior margin overhanging and distinctly in advance of that of eyes. ANTENNAE (Fig. 179) normal, segments VII and VIII with pedicels not broadened, the last three segments thus not appearing to be joined; III with one sense-cone on inner surface, one on outer, and one on lower surface near middle of apex, IV with only one on inner surface but with two on outer surface, V and VI each 1 (1), the outer ones on III and IV about 33 μ long, all of them moderately slender and nearly pointed. MOUTH-CONE short, broadly rounded at tip, extending about 68 μ beyond posterior dorsal margin of head.

PROTHORAX across coxae about 2.2 times median length of pronotum, which is about 0.6 the length of head; pronotum with distinct median apodeme at middle, not fused with epimeron, without sculpture; antero-marginal and antero-angular setae vestigial (3 μ), the other setae brownish yellow and pointed, midlaterals 39, epimerals 37, postero-marginals 84 and somewhat stouter than epimerals, coxals 22. FORE WINGS typical, about 904 μ long, slightly broadened to basal fifth, narrowed to beyond middle, thence with sides parallel, posterior margin without accessory setae, the third subbasal seta brownish yellow, pointed, and about 46 μ long, the others minute. LEGS normal, more slender than usual, fore femur 67 μ across; fore tarsi not toothed.

ABDOMEN with median tergite of segment I slightly polygonally reticulate and with two pores, terga II-IX slightly sculptured almost throughout, reticulate and asperate laterally; seta I on VIII rounded at tip, all others pointed, I on IX 103 μ, II 90, III 108, terminal setae 161; tube evenly arcuate from basal collar to near middle, thence tapering evenly to tip, its length about half that of head and twice its greatest subbasal width, this 2.4 times the apical width, surface smooth.

MEASUREMENTS of macropterous female (holotype), in mm.: Length about 1.68 (distended, 1.78). Head, length 0.232, width across eyes 0.192, least width at posterior angles of eyes 0.175, greatest width across cheeks 0.189, least width near base 0.161. Prothorax, median length of pronotum 0.141, width across coxae

0.309; mesothorax, width across anterior angles 0.323, greatest width 0.336; metathorax, greatest width 0.332. Abdomen, greatest width (at segments III-IV) 0.336; tube (X, only), length 0.136, greatest subbasal width 0.069, least apical width 0.029.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	53	58	74	63	61	65	50	50
Width (μ):	47	35	33-34	30	30	27	22	16

Total length of antenna, 0.474 mm.

Female, forma brachyptera. — Very similar to long-winged form in color and structure; unique morphotype with head less shaded posteriorly, femora almost wholly unshaded, antennae paler in last two or three segments; sense-cones not different.

Measurements of brachypterous female (morphotype), in mm.: Length about 1.78 (distended, 2.07). Head, length 0.217, width across eyes 0.171, least width at posterior angles of eyes 0.158, greatest width across cheeks 0.181, least width near base 0.163; eyes, dorsal length 0.062, width 0.048, interval 0.075; postocular setae, length 0.065, interval 0.136, distance from eyes 0.017; mouth-cone, length beyond posterior dorsal margin of head 0.081. Prothorax, median length of pronotum 0.143, width across coxae 0.321, antero-marginal setae 0.003, antero-angular, 0.003, midlateral 0.036, epimeral 0.031, postero-marginal 0.077, coxal 0.028; mesothorax, width across anterior angles 0.304, greatest width 0.314; metathorax, greatest width 0.297; fore wings, length 0.227. Abdomen, greatest width (at segments III-IV) 0.357; tube (X, only), length 0.135, greatest subbasal width 0.070, least apical width 0.027, terminal setae 0.167; seta I on IX 0.097, II 0.076, III 0.107.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	53	56	73	59	58	60	51	50
Width (μ):	48	36	33	32	30	29	22	16

Total length of antenna, 0.460 mm.

Brasil: Belém, Pará, August 11, 1951, 2 macropterous ♀'s (including holotype) and 1 brachypterous ♀ (morphotype); and August 19, 1951, 2 macropterous ♀'s — all taken by the author from dead leaves of *Euterpe oleracea*.

This is the only species of the genus with the head almost completely reticulate and with three sense-cones on each of the third and fourth antennal segments.

Psalidothrips dissidens, sp. nov.

(Fig. 180)

FEMALE (macropterous). — Length about 1.5 mm. (distended, 1.7 mm.). COLOR nearly uniform brown, with head darkened laterally and anteriorly; tube brown like body, paler basally and apically; legs yellow, the femora shaded with brown except at either end; antennae brown, darkest and concolorous with head in segments I, II, and IV-VIII, I paler basally, II paler apically and medially, III yellow in about basal sixth, dark brown to first whorl of setae, paler brown beyond, IV and V darkest in pedicel; fore wings yellowish brown, darkest in anal lobe, in apical third, and in a median or postmedian streak in middle third.

HEAD (Fig. 180) about 1.24 times as long as width across eyes, this dimension much less than that across cheeks, the latter evenly and abruptly narrowed to eyes from a point behind postocular setae, tapering concavely toward base, where the width is about 0.9 that across eyes and about 0.86 that across cheeks, the width in front of eyes a little more than half that at posterior angles of eyes, the process broadest anteriorly; vertex slightly produced and overhanging; surface of head lightly subreticulate in ocellar area and between eyes, striate at sides, and more lightly cross-striate at base, the occipital line faint, the cheeks distinctly serrate; postocular setae pale yellowish, slightly dilated apically, about 56 μ long,133 apart, and 13 from eyes; other cephalic setae minute, pale and pointed. EYES typical of the genus, though somewhat less protruding than usual, about one-third the length of head, their dorsal length 70 μ, width about 48, and interval about 70. OCELLI about 20 μ in diameter, the posterior pair closer together than usual (23 apart) and only 15 from median ocellus, this last with anterior margin overhanging and distinctly in advance of that of eyes. ANTENNAE with segment III shorter than IV, VII and VIII with pedicels not broadened, the last three segments thus not appearing to be closely joined; III with one sense-cone on inner surface and two on outer, IV with two on either surface, V and VI each with two on either surface, all long, slender, pointed, and seta-like, those on III and IV attaining or surpassing middle of following segment and about 48 μ long. MOUTH-CONE short, broadly rounded, extending about 76 μ beyond posterior dorsal margin of head.

PROTHORAX across coxae about 2.1 times as wide as median length of pronotum, which is more than 0.6 the length of head; pronotum with trace of median apodeme at middle, partially fused with epimeron, with a few distinct anastomosing striae along posterior margin; antero-marginal and antero-angular setae minute

(3-10μ), the other setae pale brownish yellow, the midlaterals dull and 41 μ, epimerals slightly expanded and 57 μ, postero-marginals pointed and 69 μ, coxals pointed and 17 μ. Fore wings typical, 728 μ long, somewhat narrowed to apex, without accessory setae, and with the subbasal setae expanded. Fore legs normal; fore femora about 67 μ across; fore tarsi not toothed.

Abdomen lightly reticulate in median tergite of segment I, the other terga lightly reticulate and asperate at sides, largely faintly cross-striate elsewhere, more distinctly so across base of tergum IX; seta I on terga I-VII, and II on III and IV, dilated or dull at tip, all others pointed, I on IX 87μ, II 147, III 104, terminal setae 100; tube (X, only) 0.6 the length of head, twice its own greatest width, and more than twice as wide near base as at apex, tapering straightly from near base to apical fourth, thence very slightly flaring to tip, surface smooth.

Measurements of female (holotype), in mm.: Length about 1.46 (distended, 1.74). Head, length 0.206, width across eyes 0.166, least width at posterior angles of eyes 0.157, greatest width across cheeks 0.175, least width near base 0.151, width in front of eyes 0.085. Prothorax, median length of pronotum 0.126, width across coxae 0.269; mesothorax, width across anterior angles 0.269, greatest width 0.270; mesothorax, greatest width 0.267. Abdomen, greatest width (at segment III) 0.312; tube (X, only), length 0.123, greatest subbasal width 0.060, least apical width 0.026.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	38	51	60	71	67	53	37	43
Width (μ):	40	30	29	27	26	24	20	13

Total length of antenna, 0.420 mm.

Brasil: Belém, Pará, August 19, 1951, J.D.H., 1 ♀ (holotype), from dead leaves of *Socratea* formerly *Iriartea exorrhiza*.

A very distinct species, because of the dark color, knobbed postocular setae, and very slender sense-cones.

Genus HOPLOTHRIPS Amyot et Serville, 1843

(Hoplothrips versus *Phlaeothrips; Phlaeothrips* versus *Euphlaeothrips)*

This large genus, as understood at present, is likely composed of several diverse elements, some of which may ultimately be separated as distinct genera. For exemple, we might associate with the type-species *corticis* a number of large, usually dark-colored species — such as the European *ulmi*, the American *beachi* and *karnyi*, and the widely distributed *flavipes* — and think of them as representing a distinct genus from the smaller, light-colored ones

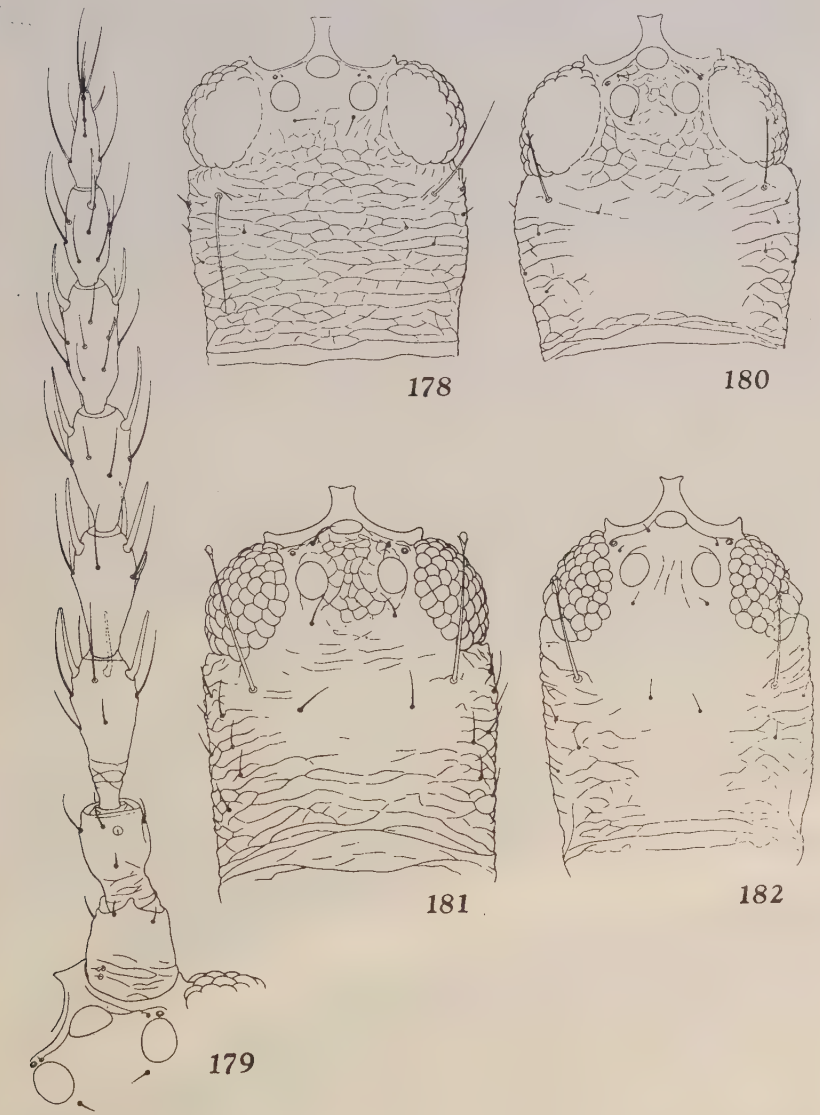
which used to be placed in *Trichothrips* Uzel. The writer, for one, has been reluctant to accept the combination of the two groups, because later they may possibly be separated; but in recent years, following Priesner, he has used the name *Hoplothrips* for them all. Thus the generic name has come to be employed almost universally for more than one hundred species.

Morison, However, in 1949, in his "Thysanoptera of the London Area" (Lond. Nat., 28(1948:81; Nov., 1949), designates *Phlaeothrips pedicularia* Haliday as the type-species of *Phlaeothrips* Haliday, 1836; and this designation, if valid, would make both *Hoplothrips* and *Trichothrips* synonyms of *Phlaeothrips,* and leave the genus which has been called *Phlaeothrips* (or *Phloeothrips*) since the days of Uzel without a name. To rectify this last condition, he then proceeds to coin the new name *Euphlaeothrips* as a substitute, and designates *Phlaeothrips coriacea* Haliday as its type-species.

Fortunately, however, the rules of nomenclature, with the object of making scientific names both universal and stable, have been devised in such a way as to prevent such changes as this. They specify in unequivocal language that the type-species of any genus established p r i o r t o 1 9 3 1 , in the event that the author failed to designate one, may subsequently be selected from *a n y o n e* of those originally included in the genus, and that such a selection, when published, *s h a l n o t b e s u b j e c t t o c h a n g e .*

When we inspect the three taxonomic genera, *Phlaeothrips* Haliday (1836), *Hoplothrips* Amyot et Serville (1843), and *Trichothrips* Uzel (1895), we note at once that all were established "prior to 1931". We note, too, that the type-species of *Phlaeothrips* was selected by the writer in 1912 (Proc. Ent. Soc. Washington, 14:144), from "one of those originally included", in the words, "The species *coriaceus* of Haliday must be considered the type of this genus". If this statement appears to be too indirect or indefinite to be binding, one need only refer to the rules to learn that a mere statement that a given species is the type is held to be adequate — the rules specifically so state. I might add that this selection of the type-species was deliberately made in the interests of stability, to insure the continued use of the name in the sense in which it had been adopted by Uzel in 1895 and employed, without exception, by Hinds and later authors.

The type-species of *Hoplothrips,* the second of the three genera which we are considering, was designated by Karny, in 1912 (Zool. Ann., 4:323), as *Trips* (sic) *corticis* DeGeer (synonym: *Trichothrips copiosa* Uzel) — again, legally, from one of the species originally included in the genus.



Psalidothrips and *Hoplothrips*

178 - *Psalidothrips retifer,* sp nov.; head; ♀, macropterous, paratype; x 224. 179 - Same, right antenna; ♀, macropterous, holotype; x 271; 180 - *P. dissidens,* sp. nov.; head; ♀, macropterous, holotype; x 224; 181 - *Hoplothrips (?) palmarius,* sp. nov.; head; ♀, paratype; x 224; 182 - *H. agrestis,* sp. nov.; head; ♀, paratype; x 224.

The type-species of *Trichothrips,* the last of these genera, was designated by the writer in 1915 (The Ent., 1915:105) as *Phlaeothrips pedicularia* Haliday — and here, too, the species is an originally included one.

Morison, then, instead of following the rules (as he says) is clearly departing from them in not recognizing the earlier, valid selections of type-species. Hence, we must revive *Hoplothrips* in the usual sense, restore *Phlaeothrips* to its rightful meaning, and synonymize *Euphlaeothrips* Morison with the latter of these two genera. ([16]) Unless something pertinent to this subject has been overlooked in the literature, stability should be assured without further action. However, rather than upset names which have received acceptance for nearly or quite a half century, an appeal will be made, if necessary, to the International Commission on Zoological Nomenclature, to add *Phlaeothrips* and *Hoplothrips* to the nomina conservanda.

Hoplothrips (?) palmarius, sp. nov.

(Fig. 181)

FEMALE (macropterous). — Length about 1.8 mm. (distended, 2.3 mm.). COLOR blackish brown, with red internal pigmentation, metathorax and first abdominal segment nearly yellow except at sides, abdominal segments III-V paler, VI-IX progressively darker, the head more or less yellowish across base tube bright yellow, tipped lightly with gray, brown in basal collar; legs largely golden yellow, femora heavily shaded with brown except at either end and with fore pair darkest, tibiae similarly but not so heavily shaded; antennae brown, paler than head, II nearly yellow beyond pedicel and palest, III-V nearly yellow to first whorl of setae; fore wings nearly uniform yellowish brown, darkest in anal lobe and in a median streak near middle of wings.

HEAD (Fig. 181) more than 1.3 times as long as greatest width, which is across cheeks, the width across eyes slightly less, the least width near base 0.9 the greatest width; cheeks abruptly incised to eyes and angulate behind the incision, thence subparallel to base (or else very slightly widened in anterior third and slightly tapering behind, the width in front of eyes (89 μ) a little more than one-half the greatest width across cheeks; vertex subconical, slightly overhanging anteriorly; surface of head sculptured as shown in figure, reticulate in ocellar area, cross-striate elsewhere, the cheeks distinctly serrate; occipital line complete; basal collar only slightly projecting; postocular setae pale brown, dilated at

([16]) New synonymy.

tip, about 85 μ long, 124 apart, and 23 from eyes; all other cephalic setae minute, slender, and pointed. Eyes rounded, somewhat protruding, without notably enlarged facets posteriorly, about 0.3 the length of head, about 73 μ long, 49 wide, and 77 apart, slightly narrower ventrally. Ocelli about 23 μ in diameter, the posterior pair about 30 apart and 23 from median ocellus, this last with anterior margin overhanging and distinctly in advance of that of eyes. Antennae 8-segmented, moderately slender, terminal segment pedicellate, setae moderately long and all pointed, sense-cones long, slender, pointed, III and IV 1 (2), V and VI 1 (1), the outer upper ones on III and IV about 48 μ long. Mouth-cone broadly rounded at tip, extending about 86 μ beyond posterior dorsal margin of head.

Prothorax across coxae about twice the median length of pronotum, which is fully 0.6 the length of head; pronotum with short dark apodeme at middle, fused with epimeron, with distinct anastomosing striae along posterior margin; antero-marginals short (15 μ) and slender, others long, pale gray-brown, and dilated at tip, antero-angulars 74 μ, midlaterals 80, epimerals 82, postero-marginals 96, coxals 44, the midlaterals only 30-32 from antero-angulars. Fore wings about 812 μ long, very slightly narrower for a short distance just beyond middle, posterior margin without accessory setae, the three major subbasal setae pale brown, knobbed, and respectively about 59, 69, and 76 μ long. Legs moderately short; fore femora not swollen; fore tarsi with a small and somewhat backwardly-directed tooth.

Abdomen width median tergite of segment I lightly polygonally reticulate and with two pores, terga II-VIII very lightly cross-striate (especially anteriorly), faintly reticulate at sides, IX more strongly sculptured across base; seta I on I-VIII, and II on III-VIII, light brown (the last of these sometimes darker) and knobbed, other setae pointed, I and II on IX 180-183 μ, III 156, terminal setae 134; tube 0.64-0.7 the length of head and 1.8-2.0 times as long as its greatest subbasal width, this about twice the apical width, sides almost perfectly straight, surface smooth.

Measurements of female (holotype), in mm.: Length about about 1.79 (distended, 2.25). Head, length 0.234, width across eyes 0.170, least width just behind eyes 0.163, greatest width across cheeks 0.175, least width near base 0.159. Prothorax, median length of pronotum 0.143, greatest width (inclusive of coxae) 0.283; mesothorax, width across anterior angles 0.308, greatest width 0.323; metathorax, greatest width 0.322. Abdomen, greatest width (at segment IV) 0.392; tube (X, only) length 0.150, greatest subbasal width 0.085, least apical width 0.042.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	46	65	76	76	78	67	52	55
Width (μ):	43	34	35	34	30	26	24	15

Total length of antenna, 0.515 mm.

Brasil: Belém, Pará, August 14, 1951, J.H.D. and J. Murça Pires, 1 ♀ (paratype) from dead leaves of *Bactris maraja;* and August 17 and 19, 1951, J.D.H. 5 ♀'s (including holotype) from dead leaves of *Euterpe oleracea.*

Though not at all pleased with the assignment of this species, even tentatively, to *Hoplothrips,* the writer prefers that course to the erection of a new genus in an area of the family so needing revision. It is no more of place there, however, than a number of other species with which it will itself associated. The sculpture of the head, the long and knobbed postocular and prothoracic setae, as well as the comparative lengths of the antero-marginal and antero-angular setae and the closeness of the latter to the midlaterals, the absence of accessory hairs from the fore wings, and the color of the tube, collectively, will distinguish it.

Hoplothrips agrestis, sp. nov.

(Fig. 182)

Female (macropterous). — Length about 1.9 mm. (distended, 2.1 mm.). Color nearly uniform blackish brown, with red internal pigmentation; tube paler in apical half; legs brownish yellow, with femora heavily shaded with brown except at ends, the tibiae similarly but more lightly shaded; antennae about concolorous with body in segments I and IV-VIII, II blackish brown in pedicel and along sides, its apex yellow, III yellow in pedicel and shading to light brown apically, IV and V darkest basally; fore wings pale gray, yellowish basally, brown in scale, with apical two-thirds faintly marked with a median streak and with margins faintly darkened.

Head (Fig. 182) a little less than 1.4 times as long as greatest width, which is across cheeks near middle, the width across eyes distinctly less, the least width near base about 0.84 the greatest width; cheeks strongly rounded to eyes, slightly convex to behind middle, then roundly converging to near basal collar, the width in front of eyes (88 μ) slightly more than one-half the greatest width across cheeks; vertex subconical, slightly overhanging anteriorly; surface of head distinctly striate at sides, the ocellar area smooth, the cheeks faintly serrate, occipital line complete, basal collar distinct; postocular setae yellowish, dilated at tip, about 75 μ long, 119 apart, and 25 from eyes; all other cephalic

setae minute, slender, and pointed. Eyes rounded, about 0,3 the length of head, somewhat protruding, with several enlarged facets posteriorly, 67 μ long, 45 wide, and 70 apart dorsally; ventrally 53 long, 40 wide, and 81 apart. Ocelli 20-23 μ in diameter, the posterior pair about 26 apart and 20 from median ocellus, this last with anterior margin overhanging and posterior margin about on a line with front margin of eyes. Antennae 8-segmented, the last two segments not united, VIII conical, with a slight subbasal constriction; setae moderately long, all pointed; sense-cones slender and nearly pointed, III 1 (2), IV 2 (2), V and VI each 1 (1), the upper outer one on III about 28 μ, on IV about 36. Mouth-cone broadly rounded at tip, extending about 103 μ beyond posterior dorsal margin of head.

Prothorax across coxae twice the median length of pronotum, which is about three-fourths the length of head; pronotum without distinct median apodeme, not fused with epimeron, faintly striate near anterior angles, more distinctly striate along posterior margin; antero-marginal setae minute (6 μ), others long, brownish yellow, and dilated at tip, antero-angulars and midlaterals 61-62 μ, epimerals 84, postero-marginals 90, coxals 62-74. Fore wings 798 μ long, nearly equal in width throughout, posterior margin without accessory hairs, the three major subbasal setae respectively 45, 69 and 80 μ long. Legs moderate in length; fore femora somewhat enlarged; fore tarsi with a small and somewhat reflexed tooth.

Abdomen with median tergite of segment I lightly reticulostriate anteriorly and with the two usual pores; II lightly reticulate in anterior angles and for a short distance either side of median line, with about one stria crossing latter, III-VIII nearly smooth, IX distinctly cross-striate across base and reticulate in anterior angles; seta I on II-VIII, and seta II on III-VI and VIII, all dilated at apex (like postoculars), other setae pointed, I on IX 189 μ, II 183, III 158, terminal setae 217, these last dark brown, the others pale yellowish brown; tube (X, only) two-thirds the length of head, only 1.6 times as long as greatest subbasal width, this a little more than twice the apical width, sides almost perfectly straight, surface smooth.

Measurements of female (holotype), in mm.: Length about 1.85 (distended, 2.13). Head, length 0.227, width across eyes 0.160, least width just behind eyes 0.154, greatest width across cheeks 0.168, least width near base 0.142. Prothorax, median length of pronotum 0.169, greatest width (inclusive of coxae) 0.332; mesothorax, width across anterior angles 0.328, greatest width posteriorly 0.311; metathorax, greatest width 0.304. Abdomen,

greatest width (at segment IV) 0.382; tube (X, only), length 0.152, greatest subbasal width 0.094, least apical width 0.045.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	43	56	67	66	64	56	50	40
Width (μ):	43	33	33	32	30	27	24	15

Total length of antenna, 0.442 mm.

MALE (brachypterous). — Like female in color and in most details of structure, but with fore legs enlarged (at least in large individuals) and with a long, stout, tarsal tooth; sternum VIII completely crossed by a glandular area occupying middle one-half; seta II on segment IX abbreviated to 40 μ.

MEASUREMENTS of male (allotype), in mm.: Length about 1.65 (distended, 2.00). Head, length 0.206, width across eyes 0.144, least width just behind eyes 0.138, greatest width across cheeks 0.153, least width near base 0.132; eyes, dorsal length 0.056, dorsal width 0.036, dorsal interval 0.073, ventral length 0.045, ventral width 0.032, ventral interval 0.081; median ocellus, diameter 0.017; posterior ocelli, diameter 0.017, interval 0.029, distance from median ocellus 0.016; postocular setae, length 0.073, interval 0.106; mouth-cone, length beyond posterior dorsal margin of head 0.111. Prothorax, median length of pronotum 0.167, greatest width (inclusive of coxae) 0.330, antero-marginal setae, length 0.004, antero-angulars 0.053, midlaterals 0.047, epimerals 0.071, postero-marginals 0.081, coxals 0.057; mesothorax, width across anterior angles 0.297, greatest width posteriorly 0.279; metathorax, greatest width 0.269. Fore wings, length 0.225. Abdomen, greatest width (at segment IV) 0.337; tube (X, only), length 0.128, greatest subbasal width 0.081, least apical width 0.039; seta I on segment IX 0.165, II 0.040, III 0.177; terminal setae, length 0.259.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	41	53	63	61	62	53	49	36
Width (μ):	42	30	30	30	27	26	23	13-14

Total length of antenna, 0.418 mm.

BRASIL: Belém, Pará, July 24, 1951, J.D.H., 2 ♀'s (including holotype) and 2 ♂'s (including allotype), from *Andropogon,* with some intermixed living and dead vegetation.

The dark antennal coloration and expanded setae, as well as the short, dark, stout tube and the form of the glandular area on the eighth abdominal sternum of the male, differentiate this species adequately.

Hoplothrips dissonus, sp. nov.

(Fig. 183)

Female (forma brachyptera). — Length about 2.8 mm. (distended, 3.7 mm.). Color dark blackish brown, with red internal pigmentation; abdominal terga II-VIII each with an indistinct median transverse dash behind antecostal line; tube paler across base and in about apical three-fifths; coxae and femora concolorous with body, the tips of latter yellow, trochanters, tibiae, and tarsi also yellow, the tibiae (especially the middle and hind pairs) shaded with brown; antennae concolorous with head in segments I and II but with tip of latter pale yellow and apical ring golden, III bright yellow in basal two-thirds or less and blackish brown apically, IV blackish brown and darker beyond first whorl of setae, V-VIII nearly black.

Head (Fig. 183) 1.5 times as long as greatest width, which is across cheeks opposite bases of postocular setae, the width across eyes only 0.86 as great, the least width near base contained in total length 1.8 times; cheeks decidedly convex, rounded to eyes and to near basal collar, the latter distinct, the width across it equal to that across eyes; production between eyes and antennae distinct, about 17 μ long, its width 127, total length in front of eyes 50 μ; dorsal and lateral surfaces sculptured almost throughout, the ocellar area rugose, base lightly reticulate, sides striate, profile thus serrate; vertex rounded, scarcely overhanging; postocular setae brownish yellow and with finely drawn-out points, very long (144 μ), about 163 apart and 44 from eyes, other cephalic setae small. Eyes flattened laterally, not at all protruding, scarcely 0.3 the length of head, their dorsal length in holotype 107 μ, width 59, interval 93, ventral length and width slightly less. Ocelli 24-26 μ in diameter, the posterior pair about 38 apart and 27 from median ocellus, this last directed upward and forward and with its posterior margin about on a line tangent with anterior margin of eyes. Antennae normal, 8-segmented; segment III with inner surface nearly straight and outer surface slightly convex, VIII abruptly pedicellate and about 2.8 times as long as wide; all setae pointed; sense-cones short, colorless, pointed, strongly tapering, disposed as follows on inner (outer) surfaces of segments: III 1 (2), IV 2 (2), V and VI each 1 (1); upper outer sense-cones on III and IV 31-32 μ. Mouth-cone rounded at tip and extending about 153 μ beyond posterior dorsal margin of head.

Prothorax with median line of pronotum 0.73 that of head and contained in the trans-coxal width nearly twice; pronotum convex, not fused with epimeron, with short dark median apodeme at

middle of length, striate at sides, with a few striae extending median from junction of epimeron and episternum, its posterior margin rather closely cross-striate in the area between and behind postero-marginal setae; antero-marginal setae minute (about 22 μ), others long, brownish yellow, and finely pointed, antero-angulars of holotype 78, midlaterals 141, epimerals 129, postero-marginals 180, coxals 84, the coxae with about six additional stout pointed setae at posterior angles, and with their outer anterior dorsal surface rather heavily reticulo-striate. PTEROTHORAX normal. LEGS normal, fore tarsi with the usual strong tooth at base of inner surface. FORE WINGS 378 μ long, the two brownish yellow pointed subbasal setae 90 and 160 μ long, respectively.

ABOMEN normal; median tergite of segment I lightly polygonally reticulate posteriorly, striate anteriorly, with the two usual pores; remainder of abdomen lightly sculptured laterally, IX more distinctly so across base; seta I on I rounded at tip, other setae pointed, terminal setae dark brown, others brownish yellow, I and II on IX 175-176 μ, III 185; tube about two-thirds the length of head, fully 2.3 times as long as width just beyond basal collar, this twice the apical width, sides almost perfectly straight, surface smooth.

MEASUREMENTS of female (holotype), in mm.: Length about 2.8 (distended, 3.68). Head, length 0.363, width across eyes 0.210, greatest width across cheeks 0.245, least width near base 0.199, width across basal collar 0.209. Prothorax, median length of pronotum 0.265, greatest width (inclusive of coxae) 0.514; mesothorax, width across anterior angles 0.496, greatest width posteriorly 0.483; metathorax, greatest width posteriorly 0.489. Abdomen, greatest width (at segments II and III) 0.617; tube (X, only), length 0.239, width across basal collar 0.105, greatest subbasal width 0.101, least apical width 0.050.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	78	84	124	116	98	89	74	65
Width (μ):	63	40	47	47	46	38	32	23

Total length of antenna, 0.728 mm.

MALE (brachypterous). — Like female in color, but with body somewhat paler and more yellowish; fore legs enlarged in large individuals, and with a much larger tarsal tooth; sternum VIII completely crossed by a glandular area which occupies the seventh and eighth eleventhes; seta II on segment IX abbreviated to 65 μ, but not stouter than seta I.

MEASUREMENTS of male (allotype), in mm.: Length about 2.36 (distended, 2.84). Head, length 0.318, width across eyes

0.176, greatest width across cheeks 0.206, least width near base 0.171, width across basal collar 0.183; eyes, dorsal length 0.083, dorsal width 0.047, dorsal interval 0.083, ventral length 0.072, ventral width 0.041, ventral interval 0.094; median ocellus, diameter 0.025; posterior ocelli, diameter 0.024, interval 0.030, distance from median ocellus 0.025; postocular setae, length 0.151, interval 0.140, distance from eyes 0.044; mouth-cone, length beyond posterior dorsal margin of head 0.160. Prothorax, median length of pronotum 0.308, greatest width (inclusive of coxae) 0.507, antero-angular setae, 0.167, midlaterals 0.186, epimerals 0.217, postero-marginals 0.217, coxals 0.072; mesothorax, width across anterior angles 0.472, greatest width posteriorly 0.459; metathorax, greatest width posteriorly 0.452. Fore wings, length 0.295. Abdomen, greatest width (at segments II and III) 0.517; tube (X, only), length 0.224, width across basal collar 0.085, greatest subbasal width 0.089, least apical width 0.045; seta I on segment IX 0.134, II 0.065, III 0.203; terminal setae, length 0.227.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	69	75	105	97	90	80	67	60
Width (μ):	56	36	42	40	37	33	27	20

Total length of antenna, 0.643 mm.

Brasil: Boracéia, Munic. de Salesópolis, S.P., June 8, 1948, J.D.H., 8 ♀'s (including holotype) and 6 ♂'s (including allotype), under decomposing bark.

Readily known by the large size, the narrow, flattened eyes, and the rugose vertex.

Hoplothrips detector, sp. nov.

(Fig. 184)

Female, forma macroptera. — Length about 2.6 mm. (distended, 3.3 mm.). Color blackish brown, with red internal pigmentation; abdomen not so dark medially, tube paler basally and apically; legs about concolorous with body, tibiae somewhat paler, the fore tarsi and trochanters, bases of tibiae, and tips of fore femora nearly yellow, mid and hind tarsi yellowish brown; antennae concolorous with head in segments I and II, save for the yellow tip of latter, III golden yellow to first whorl of setae and with remainder shaded to blackish brown at apex, IV brown but somewhat yellowish in pedicel and blackish brown apically, V-VIII nearly black; fore wings with anal lobe dark brown, very lightly shaded at extreme base, nearly clear to first fringing hairs, and gradually darkening beyond, with numerous brown dots in apical third, and

with a submarginal pale streak which is more evident anteriorly in about middle fifth and posteriorly in apical half.

Head (Fig. 184) about 1.65 times as long as greatest width (which is shortly behind eyes, the width across latter negligibly less) and 1.3 times the least width near base, produced about 10 μ in front of eyes, the production with sides paralled an 123 μ wide; cheeks sharply narrowed to eyes (where the width is about 0.9 the greatest width across eyes), gradually and roundly converging to about basal third, thence much more rapidly converging to near basal collar; dorsal and lateral surfaces rather heavily sculptured throughout (see Fig. 184), the cheeks thus distinctly serrate; vertex broadly conical, slightly produced and somewhat overhanging; postocular setae yellow, dully pointed, about 128 μ long, 147 apart, and 42 from eyes; other cephalic setae brown and pointed, those on cheeks arising from slight tubercles. Eyes rounded and protruding, broadest near middle, scarcely 0.3 the length of head, their dorsal length 103 μ, width and interval about 63 and 97, respectively. Ocelli 29-30 μ in diameter, all 35-36 apart, the median one directed upward and forward and with its posterior margin about on a line tangent with anterior margin of eyes. Antennae 8-segmented, their structure typical; segment III with inner surface slightly concave, outer surface convex, VIII abruptly pedicellate and only 2.3 times as long as wide; all setae pointed; sense-cones colorless, curved, and pointed, III 1 (2), IV 2 (2), V and VI each 1 (1), the outer, upper ones on III and IV 47 and 44 μ, respectively. Mouth-cone rounded at tip and extending about 133 μ beyond posterior dorsal margin of head.

Prothorax with median line of pronotum about 0.66 that of head and contained in the trans-coxal width nearly twice, its surface sculptured much like head save at middle, median apodeme dark and heavy, occupying one-half its length; antero-marginal setae minute, antero-angulars only 23 μ long, the others yellow, slightly dilated at tip, midlaterals 83 μ, epimerals 139, postero-marginals 102, coxals 80, the coxae with 6-7 additional, stout, dark, pointed setae on posterior angles. Pterothorax normal, without notable features. Legs normal; fore tarsi with a long, slender (63 x 22 μ), straight tooth. Fore wings normal, broadest just beyond subbasal setae, slightly narrowed toward tip, with 15-17 accessory setae; first and fourth subbasal setae minute and pointed, the second 70-83 μ and dilated at tip, the third 115-134 μ and pointed, all pale yellow.

Abdomen normal; median tergite of segment I lightly polygonally reticulate, without pores; seta I on segments I-IX, and II on VII and IX, blunt or slightly dilated at tip, all others pointed; terminal se-

tae dark brown basally, all other major setae yellow, I on IX 133, II 167, III 150, terminals 183; tube (segment X, only) about 0.6 the length of head, fully 2.5 times as long as width just beyond basal collar, this somewhat less than twice the width at apex, its sides almost perfectly straight, surface smooth.

Measurements of macropterous female (holotype), in mm.: Length about 2.63 (distended, 3.31). Head, length 0.367, width across eyes 0.223, least width at posterior angles of eyes 0.206, greatest width across cheeks 0.224, least width near base 0.168, width across basal collar 0.175. Prothorax, median length of pronotum 0.242, greatest width (inclusive of coxae) 0.468; mesothorax, width across anterior angles 0.462, greatest width 0.470; metathorax, greatest width 0.449. Abdomen, greatest width (at segment III) 0.487; tube (X, only), length 0.224, width across basal collar 0.093, greatest subbasal width 0.088, least apical width 0.047.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	80	86	104	105	90	76	58	48
Width (μ):	56	37	46	44	41	36	28	21

Total length of antenna, 0.647 mm.

Female, forma brachyptera. — Not significantly different from macropterous form except that the pterothorax and wings are reduced in size; color identical.

Measurements of brachypterous female (morphotype), in mm.: Length about 2.51 (distended, 3.18). Head, length 0.349, width across eyes 0.199, least width just behind eyes 0.186, greatest width across cheeks 0.211, least width near base 0.167, width across basal collar 0.171; eyes, dorsal length 0.089, dorsal width about 0.056, dorsal interval about 0.087; median ocellus, diameter 0.026; posterior ocelli, diameter 0.026, interval 0.034, distance from median ocellus 0.027; postocular setae, length 0.134, interval 0.141, distance from eyes about 0.042; mouth-cone, length beyond posterior dorsal margin of head 0.150. Prothorax, median length of pronotum 0.237, greatest width (inclusive of coxae) 0.455; antero-angular setae 0.016, midlaterals 0.085, epimerals 0.123, postero-marginals 0.110, coxals 0.072; mesothorax, width across anterior angles 0.421, greatest width posteriorly 0.409; metathorax, greatest width 0.392; fore wings, length 0.476. Abdomen, greatest width (at segment IV) 0.476; tube (X, only), length 0.210, width across basal collar 0.123, greatest subbasal width 0.118, least apical width 0.044; seta I on segment IX 0.145, II 0.170, III 0.180; terminal setae, length 0.180.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	76	80	103	94	79	67	55	45
Width (μ):	55	38	47	44	41	38	30	22

Total length of antenna, 0.599 mm.

Brasil: São Paulo, S.P., June 29, 1948, Lauro Travassos Filho and Ernesto Rabello, 1 macropterous ♀ (holotype) and 1 brachypterous ♀ (morphotype), from dry branches.

The large size, dark color, and small, prominent eyes are distinctive.

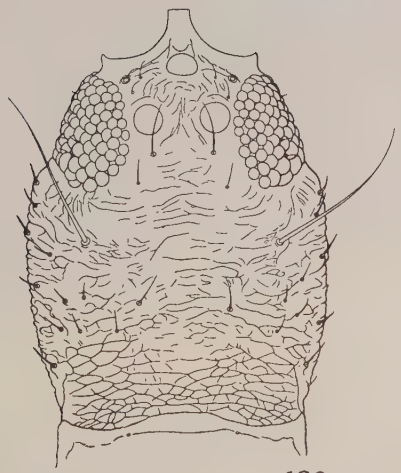
GENUS *CARATHRIPS*

Carathrips plaumanni, sp. nov.

(Fig. 185)

Female (macropterous). — Length about 2.2. mm. (distended, 2.9 mm.). Color yellowish brown, with red internal pigmentation; abdomen somewhat paler, head and prothorax somewhat darker; tube orange yellow in about basal half, gray in apical twelfth, pale yellow between; femora concolorous with body, their tips yellow; trochanters, tibiae, and tarsi clear yellow; antennae nearly concolorous with head in segments I and IV-VIII (these last darker), II largely yellow but narrowly shaded across base and along sides, III yellow in pedicel and shaded beyond, its apical half or more concolorous with (or slightly darker than) I; fore wings gray-brown, darkest in anal lobe, pale in posterior third or two-fifths and briefly just beyond middle, with a narrow postmedian streak extending from near subbasal setae to middle and continuing a short distance beyond median pocket.

Head (Fig. 185) long, nearly 1.5 times its greatest width, broadest across line of posterior margin of eyes, the width across the eyes only slightly less; cheeks smooth, curving evenly but abruptly to eyes and converging nearly straightly to just before base, the least subbasal width of head about 0.9 its greatest width; dorsum of head somewhat elevated along median line posteriorly, delicately reticulate on either side of base, occipital line distinct; vertex not produced, not overhanging; postocular setae sharply pointed, 88 μ long, 136 apart, and 25 from eyes; other cephalic setae small, slender, pale, and very finely pointed. Eyes normal, small, less than 0.3 the length of head, as long ventrally as dorsally, with re-entrant angle at sides, their dorsal length in holotype 79 μ, width and interval about 57 and 75, respectively. Ocelli large (27-33 μ in diameter), the posterior ones about 30 apart and 18 from median one, this last with anterior margin on a line with



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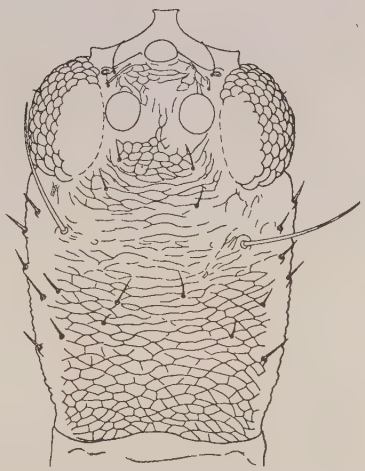

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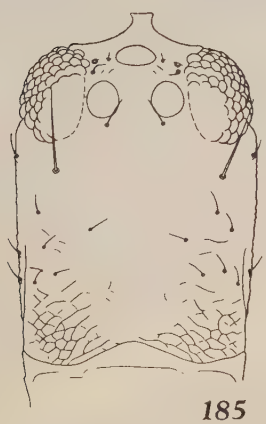

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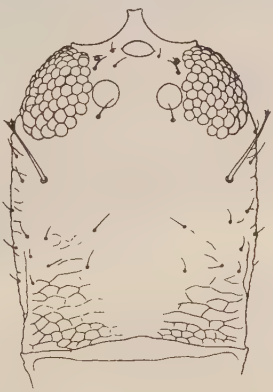

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Hoplothrips and *Carathrips*

183 - *Hoplothrips dissonus,* sp. nov.; head; ♀, brachypterous, paratype; x 159; 184 - *H. detector,* sp. nov.; head; ♀, macropterous, holotype; x 159; 185 - *Carathrips plaumanni,* sp. nov.; head; ♀, macropterous, holotype; x 159; 186 - *C. impensus,* sp. nov.; head; ♀, macropterous, paratype; x 159.

that of eyes and overhanging. Antennae 8-segmented, typical, but moderately stout, segment III only 1.6 times as long as wide, VIII pedicellate; all setae pointed; sense-cones short and stout, rounded at tip, the outer upper one on IV 27-31 μ long and about 7 wide near base, III 1 (2), IV 2 (2), V and VI 1 (1). Mouth-cone with labium broadly rounded at tip, slightly surpassed by labrum, its length beyond posterior dorsal margin of head about 190 μ.

Prothorax with median line of pronotum about 0.7 that of head and contained in trans-coxal width fully twice, its surface smooth save for a few widely-spaced striae at extreme sides and a few cross-striae along posterior margin, especially medially, the median apodeme strong, largely dark, and about one-half as long as pronotum; all major setae present, brownish yellow, antero-marginals small (35 μ), antero-angulars 56, midlaterals 43, epi-merals 100, postero-marginals 113, coxals 97, the coxae with about five short pale setae on sides posteriorly. Fore wings normal, narrowed and pouched at middle, about 1090 μ long, with 13-16 accessory hairs on posterior margin, and with the pointed subbasal setae respectively 58, 73, and 70 μ long. Legs short, fore pair enlarged; fore femora stout; fore tarsi with a large heavy tooth.

Abdomen normal, not broadened; median tergite of segment I faintly reticulate except in basal prolongations, and with the two usual pores, other terga lightly sculptured; most setae brownish yellow, terminals dark brown, all long and pointed, median pair on II attaining posterior margin of tergum, I on IX 130, II 117, III 175, terminals 167; tube (X, only) scarcely 0.6 the length of head, about 1.6 times as long as subbasal width, the width across basal collar distinctly less and more than twice the width at apex, sides diverging to basal pores, briefly concave just beyond them, thence tapering evenly to past middle, from where they taper more rapidly to tip.

Measurements of female (holotype), in mm.: Length about 2.2 (distended, 2.93). Head,, total length 0.293, width across eyes 0.189, least width just behind eyes 0.188, greatest width across cheeks 0.196, least width near base 0.178. Prothorax, median length of pronotum 0.209, greatest width (inclusive of coxae) 0.445; mesothorax, width across anterior angles 0.431, greatest width 0.444. Abdomen, greatest width (at segment III) 0.428; tube (X, only), length 0.166, width across basal collar 0.101, greatest subbasal width 0.103, least apical width 0.046.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	60	66	74	66	59	54	52	54
Width (μ):	53	37	46	44	39	31	27	19

Total length of antenna, 0.485 mm.

Brasil: Nova Teutônia, S. C., December, 1951, Fritz Plaumann, 2 ♀'s (including holotype), from dead branches.

The large size and heavy fore legs, with their stoutly toothed tarsi, ally this species only with the following, from which it may be most readily distinguished by the pointed major setae and much stouter antennal segments. It is named after its collector, who has taken so may fine insects and other invertebrates, over a period of many years, in the State of Santa Catarina, Brasil.

Carathrips impensus, sp. nov.

(Fig. 186)

Female (macropterous). — Length about 2.4 mm. (distended, 3.0 mm.). Color brownish yellow, with red internal pigmentation; head shaded beyond postocular setae, prothorax abruptly darker, pterothorax shaded at sides; abdomen darkest in segment II and somewhat paler apically, III or IV to VIII usually yellow at posterior angles and medially on posterior margin, IX darkest posteriorly; tube orange-yellow in about basal one-half, gray in apical twelfth, yellow between; legs largely yellow, with fore femora lightly shaded with brown except at tip, mid and hind femora darker because more heavily shaded, but yellow at either end; antennae nearly concolorous with prothorax, segment I paler across base, II yellowish apically and medially, III yellow to first whorl of setae and abruptly brown beyond, where it is paler than the unicolorous IV-VIII; fore wings gray-brown, briefly pale at the pocket near middle, with a very narrow pale line paralleling posterior margin beyond the pocket, and with a narrow dark postmedian line in about second fourth.

Head (Fig. 186) long, scarcely 1.5 times its greatest width, broadest across cheeks at level of postocular setae, the width across eyes only slightly less; cheeks smooth, curving evenly but abruptly to eyes, very slightly convex, converging to about basal seventh, the least subbasal width of head 0.9 its greatest width; dorsum of head somewhat elevated along median line posteriorly, delicately reticulate on either side of base, occipital line distinct; vertex not produced, not overhanging; postocular setae dilated and divided at tip, 86 μ long, 146 apart, and about 39 from eyes; other cephalic setae small, slender, pale, and very finely pointed. Eyes normal,

small, less than 0.3 the length of head, not quite as long or wide ventrally as dorsally, with re-entrant angle at sides, their dorsal length in holotype 80 μ, dorsal width and interval about 58 and 75, respectively; ventrally 76 long, 54 wide, and 82 apart. Ocelli not large (21-27 μ in diameter), the posterior ones about 29 apart and 20 from median one, this last with anterior margin about on a line with that of eyes and overhanging. Antennae 8-segmented, typical, but more slender than in *plaumanni*, segment III more than twice as long as wide, VIII pedicellate; all setae pointed; sense-cones short and stout, rounded at tip, the outer upper one on IV about 28 μ long and 4-5 wide near base, III 1 (2), IV 2 (2), V and VI 1 (1). Mouth-cone with labium broadly rounded at tip, slightly surpassed by labrum, its length beyond posterior dorsal margin of head about 169 μ.

Prothorax with median line of pronotum about 0.7 that of head and contained in trans-coxal width fully twice, its surface smooth save for a few widely-spaced striae at extreme sides and a few cross-striae along posterior margin, especially medially, the median apodeme strong, dark, and about one-half as long as pronotum; all major setae present brownish yellow, all of them (including antero-marginals) dilated and divided at tip, antero-marginals 57 μ, antero-angulars 70, midlaterals 63, epimerals 103, postero-marginals 94, coxals 80, the coxae with about three short pale setae on sides posteriorly. Fore wings normal, narrowed and pouched at middle, about 1090 μ long, with 10-13 accessory hairs on posterior margin, and with the knobbed subbasal setae 74, 75, and 65 μ long, respectively. Legs short, fore pair enlarged, fore femora stout (280 x 116 μ in holotype), fore tarsi with a large heavy tooth.

Abdomen normal, not broadened; median tergite of segment I faintly reticulate and with the two usual pores, other terga lightly sculptured; most setae brownish yellow, terminals dark brown; seta I on I-VIII, and II ou IV-VI and VIII, dilated, the others pointed, I on IX 213, II 224, III 197, terminals 238; tube (X, only) scarcely 0.6 the length of head, about 1.75 times as long as subbasal width, the width across basal collar about 4 μ greater and more than twice the width at apex, sides tapering nearly evenly from base to tip, except for a slight shoulder at basal pores.

Measurements of female (holotype), in mm.: Length about 2.36 (distended, 3.03). Head, length 0.287, width across eyes 0.190, least width just behind eyes 0.189, greatest width across cheeks 0.197, least width near base 0.178. Prothorax, median length of pronotum 0.200, greatest width (inclusive of coxae) 0.420; mesothorax, width across anterior angles 0.396, greatest

width 0.412; metathorax, greatest width 0.406. Abdomen, greatest width (at segment IV) 0.449; tube (X only), length 0.168, width across basal collar 0.100, greatest subbasal width 0.096, least apical width 0.046.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	55	65	78	70	70	63	57	56
Width (μ):	50	35	37	37	31	27	26	18

Total length of antenna, 0.514 mm.

Brasil: Rondon, Paraná, September, 1952, Fritz Plaumann, 10 ♀'s (including holotype); Nova Teutônia, S.C., December, 1951, 5 ♀'s. All speciments were taken form dead branches.

Like *plaumanni,* only, in its large size and enlarged fore legs, but readily known by the dilated major setae and the more slender antennal segments.

GENUS *HOLOPOTHRIPS* Hood, 1914. ([17])

Holopothrips arachnionis, sp. nov.

(Figs. 187-189)

Female (macropterous). — Length about 1.8 mm. (distended, 2.2. mm.). Color nearly uniform chestnut brown, with red internal pigmentation, the abdomen somewhat paler medially and with a darker dash just behind antecostal line on segments III-VII, the tube paler in apical half; legs brown in coxae, femora, and about basal one-half and three-fourths of mid and hind tibiae, respectively, the fore tibiae, all tarsi, and trochanters pale yellow; antennae with segment I dark brown but yellow across base, II nearly black in pedicel and along either surface (more broadly so on inner surface) and with its remainder pale yellow, III-V nearly unifor pale yellow but the last of these very lightly shaded apically, VI-VIII yellowish gray and successively darker, VI yellow in about basal fourth; fore wings very pale yellowish, slightly shaded to last subbasal seta, anal lobe brown.

Head (Fig. 187) about 1.4 times as long as wide, broadest at level of posterior margins of eyes, cheeks abruptly rounded to eyes, otherwise nearly straight, converging slightly to basal collar; dorsal and lateral surfaces cross-striate in the area between eyes and base, the cheeks thus somewhat serrate, the ocellar area faintly sculptured; postocular setae brown, dilated apically, 67 μ long, 114 apart, and about 31 from eyes, other cephalic setae minu-

([17]) *H. certus* Moulton is a synonym of *H. hambletoni* Hood; new synonymy. I am indebted to Mr. Hugh B. Leech, of the California Academy of Sciences, for the loan of a paratype from the Moulton collection.

te and pointed. EYES normal, closely approaching each other anteriorly, about 115 μ long, behind ocelli 72 wide and 46 apart. OCELLI about 26 μ in diameter, the median one overhanging but directed more upward than forward. ANTENNAE typical, with pale setae and sense-cones, the latter nearly straight and rounded at tip, III and IV 1 (2), V 1 (1), that on inner surface of IV 27-30 μ. MOUTH-CONE broadly rounded at tip, extending about 116 μ beyond posterior dorsal margin of head.

PROTHORAX nearly one-half the length of head and (inclusive of coxae) about 2.4 times as broad as long; pronotum with a slight, short, median apodeme, smooth excepting for a few faint cross-striae on epimeron and along posterior margin; antero-marginal setae minute (15 μ) and pointed, the others slightly dilated at tip, antero-angulars 55, midlaterals 84, epimerals 117, postero-marginals 105, coxals 35, all of them yellowish brown, epimerals paler. PTEROTHORAX normal; metanotum (Figs. 188 and 189) reticulate medially, the lines of sculpture very fine and clear, the reticles free of sculpture. LEGS normal; fore tarsi not toothed. FORE WINGS normal, with 10-11 accessory setae, and with subbasal setae formed and colored like prothoracics.

ABDOMEN normal; seta I on segments I-VIII knobbed, II pointed; IX with all setae pointed, I 223 μ, II 234, III 161; terminal setae pointed, 177 μ; tube a little less than 0.8 the length of head and about 2.5 times as long as greatest width near base, sides nearly straight, apical width about one-half that near base.

MEASUREMENTS of female (holotype), in mm.: Length about 1.84 (distended, 2.23). Head, length 0.290, width across eyes 0.190, greatest width across cheeks 0.206, least width near base 0.190, width across basal collar 0.191. Prothorax, median length of pronotum 0.140, greatest width (inclusive of coxae) 0.332; mesothorax, width across anterior angles 0.350, greatest width 0.389; metathorax, greatest width 0.377. Abdomen, greatest width (at segments II and III) 0.416; tube (X only), length 0.233, greatest subbasal width 0.090, least apical width 0.047.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	40	57	73	54	61	57	53	41
Width (μ):	45	31	30	30	29	25	23	10

Total length of antenna, 0.436 mm.

BRASIL: Jacarepaguá, D.F., May 27, 1948, J.D.H., 1 ♀ from miscellaneous low vegetation in garden.

The principal diagnostic characters which serve to separate this species from all others are the unicolorous body, short head

minute antero-marginal and large antero-angular prothoracic setae, and the reticulate metanotum, whose reticles are free of sculpture.

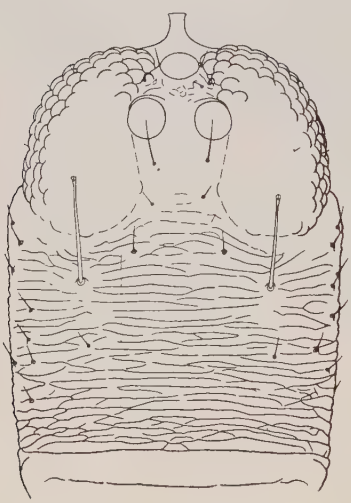
Holopothrips balteatus, sp. nov.

(Figs. 190-192)

Female (macropterous). — Length about 2 mm. (distended, 2.6 mm.). Bicolorous, largely, chestnut brown, but with base of abdomen paler and with segments I and II yellow, III-V somewhat paler medially, III-VII with a dark dash just behind antecostal line, the head and tube darkest, but the latter narrowly paler across base, and paler, too, in about apical half; legs brown in coxae (hind coxae paler), femora, and mid and hind tibiae (these last paler apically), the fore tibiae, all tarsi, and trochanters yellow, fore tibiae faintly clouded basally; antennae with segment I dark brown but slightly paler across base, II nearly black in pedicel and along either surface (more broadly so on inner surface) and with its remainder pale yellow, III-VI nearly uniform pale yellow but the last of these very lightly shaded apically, VII and VIII yellowish gray, the former paler basally; fore wings very pale yellowish, slightly shaded to last subbasal seta, anal lobe brown.

Head (Fig. 190) about 1.2 times as long as wide, broadest at level of posterior margins of eyes, cheeks rather strongly rounded to eyes and roundly converging to basal collar; dorsal and lateral surfaces cross- striate in the area between eyes and base, the cheeks thus somewhat serrate, the ocellar area faintly sculptured; postocular setae light brown, slightly dilated apically, 85 μ long, 114 apart, and averaging 22 from eyes, other cephalic setae minute and pointed. Eyes normal, closely approaching each other anteriorly, 107 μ long dorsally, 68 wide behind ocelli, and with their interval at that point 56. Ocelli about 26 μ in diameter, the median one overhanging and directed more forward than upward. Antennae typical, with pale setae and sense-cones, the latter nearly straight and rounded at tip, III and IV 1 (2), V 1 (1), that on inner surface of IV about 27 μ. Mouth-cone broadly rounded at tip, extending about 157 μ beyond posterior dorsal margin of head.

Prothorax about one-hal the length of head and (inclusive of coxae) about 2.7 times as broad as long; pronotum with a very faint median apodeme, nearly smooth except for the cross-striate epimeron and posterior margin; all major setae present, light brown, slightly dilated at tip, antero-marginals 44, antero-angulars 67, midlaterals 96, epimerals 119, postero-marginals 94, coxals minute and pointed. Pterothorax normal; metanotum (Fig. 192) re-



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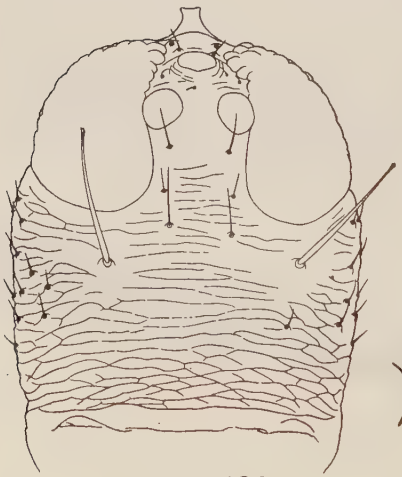

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Holopothrips

187 - *H. arachnionis*, sp. nov.; head; ♀, holotype; x 224; 188 - Same; portion of metanotum, near middline, showing sculpture; ♀, holotype; x 611; 189 - Same; left side of metanotum; ♀, holotype; x 224; 190 - *H. balteatus*, sp. nov.; head; ♀, holotype; x 224; 191 - Same; portion of metanotum, near middle, showing sculpture; ♀, holotype; x 611; 192 - Same; left side of metanotum; ♀, holotype; x 271.

ticulate medially, the lines of sculpture very fine and clear, the reticles which they form filled with faint lines of granulations (Fig. 191). Legs normal; fore tarsi not toothed. Fore wings normal, with about 8 accessory setae, the subbasal setae formed and colored like prothoracics, 57, 70, and 98 μ long, respectively.

Abdomen normal; seta I on segments I-VIII, and II on VIII, knobbed or blunt, all others pointed, IX with I 266 μ, II 253, III 214, terminal setae 182; tube a little less than 0.9 the length of head and nearly 2.4 times as long as greatest subbasal width, sides nearly straight, apical width a trifle more than one-half that near base.

Measurements of female (holotype), in mm.: Length about 1.99 (fully distended 2.55). Head, length 0.255. width across eyes 0.193, greatest width across cheeks 0.211, least width near base 0.190, width across basal collar 0.192. Prothorax, median length of pronotum 0.133, greatest width (inclusive of coxae) 0.365; mesothorax, width across anterior angles 0.365, greatest width 0.389; metathorax, greatest width 0.932. Abdomen, greatest width (at segment IV) 0.389; tube (X, only), length 0.224, greatest subbasal width 0.095, least apical width 0.050.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	42	60	72	63	66	66	56	38
Width (μ):	48	34	30	31	30	26	23	12

Total length of antenna, 0.463 mm.

Brasil: Nova Teutônia, January 3, 1949, Fritz Plaumann, 1 ♀, from leaves of a lauraceous plant.

Aside from *pennatus,* which has the legs clear yellow, the metanotal reticles free of granulation, and longer eyes, this is the only species of the genus with the whole median area of the metanotum sculptured into equilateral polygons.

Holopothrips tupi, sp. nov.

(Figs. 193-195)

Female (macropterous). — Length about 2.4 mm. (distended, 3.0 mm.). Color blackish brown, with red internal pigmentation; legs about concolorous with the body, tarsi and tips of tibiae slightly paler; antennae with segment I concolorous with head, II nearly black in pedicel and along either surface (more broadly so on inner surface), its remainder largely brown but yellow across tip, III-V golden yellow with V lightly shaded in apical half, VI much darker than V, yellow in basal half and gray-brown beyond, VII and VIII dark gray-brown; fore wings lightly shaded basally

(especially in anal lobe) and again apically (especially along posterior margin), their remainder nearly clear.

Head (Fig. 193) 1.4 times as long as wide, broadest at level of posterior margin of eyes but with the cheeks scarcely narrowed to eyes and essentially parallel excepting for a slight narrowing toward base; dorsal and lateral surfaces cross-striate throughout, save for the heavily rugosely reticulated ocellar area, the cheeks thus serrate, but faintly so; postocular setae dark brown, very short (35 μ), rounded or slightly dilated at tip, only 96 μ apart and about 36 from eyes, other cephalic setae minute and pointed. Eyes normal, closely approaching each other anteriorly, 155 μ long dorsally, 89 wide behind ocelli, and with their interval at that point 50. Ocelli about 26 μ in diameter, the median one overhanging and directed forward, the interval between the posterior pair and their distance from median ocellus each equal to their diameter. Antennae typical, with sense-cones rounded at tip and only slightly curved, III and IV 1 (2), V 1 (1), that on inner surface of IV 37-40 μ. Mouth-cone broadly rounded at tip, extending about 170 μ beyond posterior dorsal margin of head.

Prothorax very short, about one-third the length of head and (inclusive of coxae) nearly four times as broad as long; pronotum with a slight median apodeme, sculptured lightly almost throughout; antero-marginal setae minute (10 μ) and pointed, the others dark and formed like postoculars, antero-angulars 30, midlaterals 42, epimerals 74, postero-marginals 44, coxals minute. Pterothorax normal; metanotum (Fig. 195) more nearly striate than reticulate, the lines of sculpture not always connected with each other, and containing granules, the reticles themselves filled with faint lines of granulations (Fig. 194). Legs normal; fore tarsi not toothed. Fore wings normal, with 11-16 accessory setae, the subbasal setae formed and colored like prothoracics, 43, 48, and 56 μ long, respectively.

Abdomen normal; seta I on segments I-VIII, and II on VIII, knobbed or blunt, all others pointed, IX with I 245, II 214, III 130, terminal setae 227; tube about 0.7 the length of head and 2.5 times as long as greatest subbasal width, sides nearly straight, apical width a trifle more than one-half that near base.

Measurements of female (holotype), in mm.: Length about 2.39 (distended, 2.99). Head, length 0.328, width across eyes 0.231, least width just behind eyes 0.230, greatest width across cheeks 0.234, least width near base 0.220, width across basal collar 0.223. Prothorax, median length of pronotum 0.108, greatest width (inclusive of coxae) 0.420; mesothorax, width across anterior angles 0.420, greatest width 0.426; metathorax, greatest width

0.431. Abdomen, greatest width (at segments III and IV) 0.475; tube (X, only), length 0.234, width across basal collar 0.096, greatest subbasal width 0.093, least apical width 0.050.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	53	67	99	83	80	73	65([18])	33
Width (μ):	46	35	37	39	34	30	24	10

Total length of antenna, 0.553 mm.

Male (macropterous). — Very similar to female, though smaller, and identical with it in coloration; seta II on abdominal segment IX not reduced; glandular areas confined to sternum VIII, comprising two transverse bands, the anterior one interrupted medially and lying within the anterior fourth, the posterior complete and crossing the tergum at or in front of posterior fourth.

Measurements of male (allotype), in mm.: Length about 1.9 (distended, 2.33). Head, length 0.291, width across eyes 0.190, greatest width across cheeks 0.196, least width near base 0.178, width across basal collar 0.179; eyes, dorsal length 0.135, dorsal width 0.079, dorsal interval 0.041, ventral length 0.099, ventral width 0.063, ventral interval 0.072; median ocellus, diameter 0.023; posterior ocelli, diameter 0.026, interval 0.021, distance from median ocellus 0.023; postocular setae, length 0.034, interval 0.086, distance from eyes 0.027; mouth-cone, length beyond posterior dorsal margin of head 0.084. Prothorax, median length of pronotum 0.100, greatest width (inclusive of coxae) 0.336; antero-marginal setae, length 0.006, antero-angulars 0.027, midlaterals 0.027, epimerals 0.067, postero-marginals 0.030; mesothorax, width across anterior angles 0.323, greatest width 0.342; metathorax, greatest width 0.340; fore wings, length 0.917. Abdomen, greatest width (at segments III and IV) 0.308; tube (X, only), length 0.185, greatest subbasal width 0.077, least apical width 0.043; seta I on segment IX 0.179, II 0.193, III 0.179; terminal setae, length 0.205.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	45	59	81	69	69	66	60([19])	31
Width (μ):	40	29	31	32	30	26	20	9-10

Total length of antenna, 0.480 mm.

Brasil: Serra da Cantareira, Franco da Rocha, S.P., June 11, 1948, J.D.H., Frederick Lane, and Lauro Travassos Filho, 10 ♀'s (including holotype) and 3 ♂'s (including allotype), from leaves of an unidentified shrub or tree.

([18]) Ventral length.

([19]) Ventral length.

From the Mexican *ferrisi* Moulton, which appears to be the only other unicolorous species which has the head less than one and one-half times as long as wide, the antero- marginal setae minute, the antero-angulars well-developed, and the postoculars short, this species may be separated by the shorter prothoracic setae, stouter antennal segments, and longer setae on the ninth abdominal segment and at the tip of the tube.

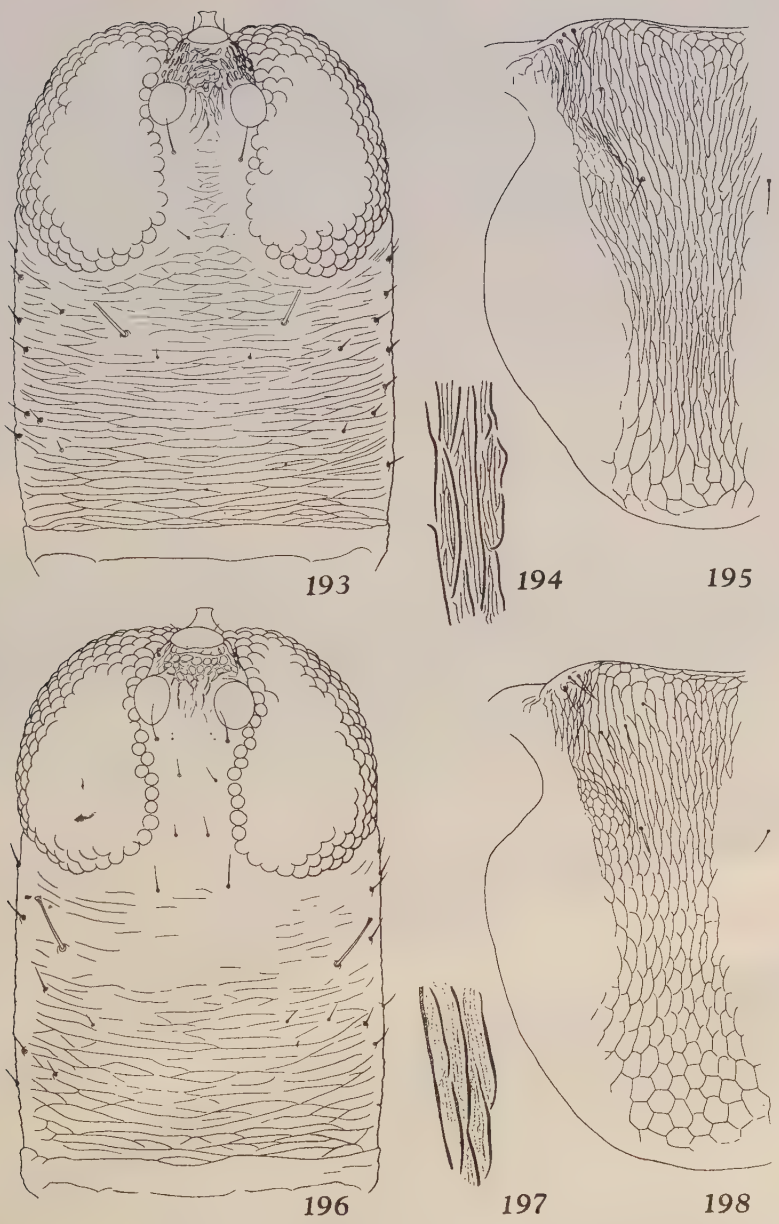
Holopothrips inversus, sp. nov.

(Figs. 196-198)

Female (macropterous). — Length about 2.3 mm. (distended, 2.9 mm.). Color blackish brown, with red internal pigmentation; legs about concolorous with body, but with tarsi and tips of tibiae almost yellow; antennae with segment I concolorous with head, II black in pedicel and along either surface (more broadly so on inner surface), its remainder pale grayish brown, III-VIII pale gray-brown, III yellow at base of pedicel and shaded to first whorl of setae, IV and V heavily shaded to first whorl of setae, VI-VIII unicolorous and nearly as dark as bases of IV and V; fore wings very pale brownish, shaded basally (especially in anal lobe and along costal margin to first subbasal seta) and just perceptibly margined with darker.

Head (Fig. 196) fully 1.6 times as long as wide, as broad across middle of cheeks as across eyes, the cheeks essentially parallel, only very slightly narrowed to eyes and to basal collar; dorsal and lateral surfaces lightly cross-striate in most of the area posterior to eyes, the cheeks thus faintly serrate only posteriorly; ocellar area rather strongly reticulate with dark lines; postocular setae dark brown, very short (39 μ), slightly dilated at tip, about 164 μ apart and 42 from eyes; other cephalic setae minute and pointed. Eyes normal, closely approaching each other anteriorly, about 0.43 the length of head, 154 μ long dorsally, 90 wide behind ocelli, and with their interval at that point 43, their ventral length about 124, ventral width 77, ventral interval 68. Ocelli 30-33 μ in diameter, the posterior pair about 27 apart and 23 from median ocellus, the median one overhanging and directed forward. Antennae typical, with sense-cones rounded at tip and only slightly curved, III and IV 1 (2), V 1 (1), that on inner surface of IV about 31 μ. Mouth-cone broadly rounded at tip, extending about 130 μ beyond posterior dorsal margin of head.

Prothorax short, less than 0.4 the length of head and (inclusive of coxae) about three times as broad as long; pronotum with trace of median apodeme, very lightly sculptured almost



Holopothrips

193 - *H. tupi,* sp. nov.; head; ♀, paratype; x 224; 194 - Same; portion of metanotum, near middle, showing sculpture; ♀, paratype; x 611; 195 - Same; left side of metanotum; ♀, paratype; x 224; 196 - *H. inversus,* sp. nov.; head; ♀, paratype; x 224; 197 - Same; portion of metanotum, near middle, showing sculpture; ♀, paratype; x 611; 198 - Same; left side of metanotum; ♀, paratype; x 224.

throughout; antero-marginal setae usually minute (about 9 μ), the others long, dark, and blunt or dilated at tip, antero-angulars 26, midlaterals 55, epimerals 103, postero-marginals 70, coxals 27. Pterothorax normal; metanotum (Fig. 198) evenly polygonally reticulate posteriorly, longitudinally striate anteriorly, the lines of sculpture containing granules, the reticles themselves filled with faint lines of granulations (Fig. 197). Legs normal; fore tarsi not toothed. Fore wings normal, with 14 accessory setae in holotype, the subbasal setae formed and colored like prothoracics, 52, 53, and 78 μ long, respectively.

Abdomen normal; seta I on segments I-IX, and II on VIII, knobbed or blunt, all others pointed, IX with I 182 μ, II 179, III 149, terminal setae 186; tube about 0.6 the length of head and 2.3 times as long as greatest subbasal width, sides nearly straight, apical width a trifle more than one-half that near base.

Measurements of female (holotype), in mm.: Length about 2.32 (distended, 2.89). Head. length 0.358, width across eyes 0.220. least width just behind eyes 0.214, greatest width across cheeks 0.220, least width near base 0.206, width across basal collar 0.210. Prothorax, median length of pronotum 0.134, greatest width (inclusive of coxae) 0.392; mesothorax, width across anterior angles 0.402, greatest width 0.412; metathorax, greatest width posteriorly 0.405. Abdomen, greatest width (at segment IV) 0.441; tube (X, only), length 0.211, greatest subbasal width 0.090, least apical width 0.047.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	54	67	93	78	83	78	81([20])	36([21])
Width (μ):	45	33	32	33	31	27	23	11

Total length of antenna, 0.570 mm.

Male (macropterous). — Very similar to female, though smaller, and identical with it in coloration; seta II on abdominal segment IX not reduced; glandular areas present on sterna VII and VIII, comprising two tranverse bands on each, the anterior one in both cases interrupted medially and closely paralleling anterior margin of sternum, the posterior one complete and crossing sternum just behind middle.

Measurements of male (allotype), in mm.: Length about 1.91 (distended, 2.30). Head, length 0.308, width across eyes 0.195, least width just behind eyes 0.190, greatest width across

([20]) Ventral length.

([21]) Dorsal length.

cheeks 0.192, least width near base 0.178, width across basal collar 0.179; eyes dorsal length 0.137; median ocellus, diameter 0.029; posterior ocelli, diameter 0.027, interval 0.020, distance from median ocellus 0.022; postocular setae, length 0.028, interval 0.124, distance from eyes 0.040; mouth-cone, length beyond posterior dorsal margin of head 0.107. Prothorax, median length of pronotum 0.115, greatest width (inclusive of coxae) 0.329, antero-marginal setae, length 0.007, antero-angulars 0.031, midlaterals 0.047, epimerals 0.093, postero-marginals 0.036; mesothorax, width across anterior angles 0.326, greatest width 0.336; metathorax, greatest width posteriorly 0.325; fore wings, length 0.868. Abdomen, greatest width (at segment IV) 0.315; tube (X, only), length 0.168, greatest subbasal width 0.075, least apical width 0.039; seta I on IX 0.159, II 0.163, III 0.162; terminal setae 0.170.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	43	56	86	67	69	69	68(22)	33(23)
Width (μ):	40	30	29	30	27	23	20	11

Total length of antenna, 0.491 mm.

Brasil: Itanhaém, S. P., June 17, 1948, J.D.H. and Jonh Lane, 5 ♀'s (including holotype) and 3 ♂'s (including allotype), principally from miscellaneous living vegetation.

This long-headed unicolorous species, with the antero-angular setae moderately large and dilated at tip, is comparable only with *orites,* from Peru — a much larger species with differently shaped head, with the metanotum exceedingly closely longitudinally striate throughout its length, and with the eyes less than 0.4 the length of the head.

Holopothrips (?) graminis, sp. nov.

(Figs. 199-200)

Female (macropterous). — Length about 2.4 mm. (distended, 2.8 mm.). Color blackish brown, with red internal pigmentation; legs concolorous with body, except that the fore tibiae and tarsi, and tips of fore femora, are yellow, the fore tibiae clouded with brown basally, the middle and hind tarsi and the tips of their tibiae somewhat yellowish; antennae with segment I concolorous with head, II yellow in apical third and brown elsewhere, darkest along inner surface, III-V and basal third or more of VI lemon-yellow, remainder of antennae yellowish gray-brown, with VI

(22) Ventral length.

(23) Dorsal length.

briefly yellowish just beyond pedicel; fore wings brown in about basal fourth, yellowish beyond.

Head (Fig. 199) about 1.2 times as long as wide, broadest behind middle of cheeks, slightly but very sharply narrowed to eyes; cheeks evenly convex and slightly serrate; vertex flat, not at all produced or overhanging; dorsal and lateral surfaces lightly cross-striate in most of area posterior to eyes, ocellar area smooth; postocular setae brown, rounded at tip but not dilated, 79 μ long, 157 apart, and 36 from eyes; other cephalic setae minute and pointed. Eyes less reniform than usual, less than 0.4 the length of head, 117 μ long dorsally, least interval (opposite median ocellus) 56 μ, greatest width 76. Ocelli about 22 μ in diameter, the median one directed upward and not at all overhanging. Antennae with sense-cones short, only slightly curved, and rounded at tip, segments III-V all 1 (1), that on inner surface of IV about 17 μ long, only. Mouth-cone broadly rounded at tip, extending about 134 μ beyond posterior dorsal margin of head.

Prothorax fully 0.6 the length of head and (inclusive of coxae) about 2.1 times as broad as long; pronotum without median apodeme, lightly sculptured along posterior margin; antero-marginal, antero-angular, and coxal setae vestigial (6-12 μ) and pointed, the others brown and with rounded tips, the midlaterals 72 μ, arising almost laterally and midway between coxa and anterior margin of pronotum, epimerals 114, postero-marginals 90. Pterothorax normal; metanotum (Fig. 200) with the lines of sculpture predominately longitudinal, their interspaces very minutely granulate, the granules not forming lines. Legs moderately short and stout (hind tibiae 280 μ), fore tarsi not toothed. Fore wings normal, with 5-8 accessory hairs, the subbasal setae brown, rounded at tip, and about 54, 58, and 90 μ long, respectively.

Abdomen normal; seta I on segments I-VIII, and II on VIII, blunt at tip, all others pointed, IX with I 237 μ, II 252, III 220, terminal setae 238; tube (X, only), nearly 0.8 the length of head and 2.5 times as long as greatest subbasal width, sides nearly straight, apical width one-half that near base.

Measurements of female (holotype), in mm.: Length about 2.42 (distended, 2.81). Head, length 0,302, width across eyes 0.207, greatest width across cheeks 0.243, least width near base 0.206, width across basal collar 0.209. Prothorax, median length of pronotum 0.190, greatest width (inclusive of coxae) 0.402; mesothorax, width across anterior angles 0.426, greatest width 0.442; metathorax, greatest width posteriorly 0.434. Abdomen, greatest width (at segment III) 0.458; tube (X, only), length 0.237, greatest subbasal width 0.095, least apical width 0.048.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	46	61	72	60	70	64	57	36
Width (μ):	51	34	32	32	32	29	24	12

Total length of antenna, 0.466 mm.

Male (macropterous). — Very similar to female in color and structure, though smaller; seta II on abdominal segment IX not reduced; glandular areas wanting.

Measurements of male (allotype), in mm.: Length about 2.07 (distended, 2.46). Head, length 0.279, width across eyes 0.192, greatest width across cheeks 0.204, least width near base 0.192, width across basal collar 0.193; eyes, dorsal length 0.107, dorsal width 0.068, dorsal interval 0.057; median ocellus, diameter 0.018; postocular setae, length 0.070, interval 0.147, distance from eyes 0.039; mouth-cone, length beyond posterior dorsal margin of head 0.117. Prothorax, median length of pronotum 0.157, greatest width (inclusive of coxae) 0.358, antero-marginal setae 0.005, antero-angulars 0.010, midlaterals 0.061, epimerals 0.089, postero-marginals 0.088; mesothorax, width across anterior angles 0.378, greatest width 0.398; fore wings, length 0.938. Abdomen, greatest width (at segment III) 0.389; tube (X, only), length 0.202; seta I on segment IX 0.181, II 0.210, III 0.192; terminal setae 0.197.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	38	54	70	57	63	57	56	34
Width (μ):	47	32	28	29	29	26	22	10

Total length of antenna, 0.429 mm.

Brasil: Piracicaba, S. P., August 3, 1950, D. P. de Souza Dias, 2 ♀'s (including holotype) and 1 ♂ (allotype), from a grass *(Erianthus asper)*.

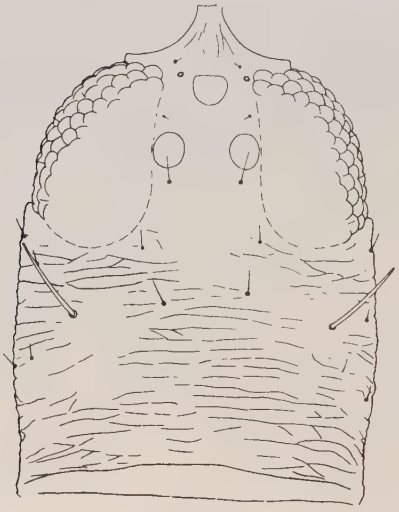
The eyes of this species are much less reniform than in any other species of the genus and do not overreach the antennal bases. This, together with the slight production of the head anteriorly and the flattened vertex, make the species an aberrant one. It has seemed better, however, to place it in *Holopothrips* for the present, at least.

GENUS *EUPATHITHRIPS*

Eupathithrips meizon, sp. nov.

(Figs. 201-202)

Female (macropterous). — Length about 5.5 mm. (distended, 6.7 mm.). Color blackish brown, with four pairs of lateral



199

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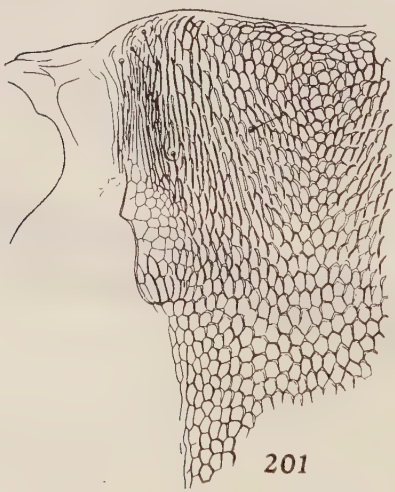

201

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Holopothrips and *Eupathithrips*

199 - *Holopothrips (?) graminis,* sp. nov.; head; ♀, holotype; x 224; 200 - Same, left side of metanotum; ♀, holotype; x 224; 201 - *Eupathithrips meizon,* sp. nov.; left side of metanotum; ♀, holotype; x 159; 202 - Same; base of right cheek; ♀, holotype; x 159; 203 - *E. bagnalli* Morgan; base of right cheek; ♀, topotypic; x 159.

white spots (visible by reflected light) on abdomen, the first pair involving sides of segment I and extending onto II, the other pairs small, occupying the sides of anterior angles of segments IV-VI and extending only slightly onto the dorsal surfaces, only; tube slightly paler in about apical third; femora blackish brown, the middle and hind pairs shading to yellowish brown in trochanters; fore tibiae dark brown in about basal half, yellow in most of apical half, the middle and hind tibiae yellow in about apical fifth and tenth, respectively, blackish brown in remainder; all tarsi yellow in basal half and shaded with brown beyond; antennae blackish brown in segments I, II, VII, and VIII, I darkest, II brown beyond pedicel, III yellow but with a brown cloud in apical fourth, IV-VI largely blackish brown, but yellowish at, or basal to, middle; fore wings brown in about basal fifth, darkest in anal lobe and in a streak involving the subbasal setae, with a dark median streak extending nearly to tip of wing, and with margins slightly darkened.

Head very long 2.5 times its greatest width, which is across eyes, this width 1.3 times the least width (which is just behind them) and fully 1.1 times the greatest width across cheeks (exclusive of tubercles), the head broadest at basal fourth; cheeks slightly and evenly arcuate, with five or six pointed setigerous tubercles forming the usual single row along exact side, the most basal tubercle largest and projecting about 20 μ, those at middle of cheeks about 14 μ, their tips not projecting beyond the trichopore of the nearly terminal seta (Fig. 202); postocular setae blackish brown, stout, tapering only slightly, and with their tips broadened, their length 114 μ, interval 108, distance from eyes 176; a second large pair of park pointed setae, 42 μ long, arising from tubercles about 50 μ behind eyes and close to sides of head. Eyes typical, about 0.32 the length of head, their dorsal length 280 μ. Ocelli normal. Antennae typical in form and structure; lateral setae at distal ends of segments III and IV much more than one-half as long as the sense-cones they accompany, all pointed, the outer upper sense-cone on III 182 μ, its accompanying seta 140; sense-cones typical, light brownish, arranged in the usual manner. Mouth-cone typical, long and pointed, about attaining posterior margin of prosternum, its length beyond posterior dorsal margin of head about 476 μ.

Prothorax along median line of pronotum about 0.4 the length of head and about 2.4 times as broad across coxae as long, with a distinct dark apodeme lying largely in front of middle; epimeron and the raised posterior margin of pronotum with fine anastomosing lines, remainder of pronotum smooth; all major setae present, moderately stout, dark in color, with tips slightly dilated,

antero-marginals 80 μ, antero-angulars 95, midlaterals 81, epimerals 155, postero-marginals 131, coxals 115. PTEROTHORAX normal; metanotum (Fig. 201) very closely polygonally reticulate, this sculpture very close in basal portion. LEGS normal, the fore femora and tibiae with the usual small setigerous tubercles along inner surface, the fore femora with the usual distal tooth, the fore tarsi with a very small downwardly-directed tooth near middle. FORE WINGS typical, with 56-60 accessory hairs and with the four subbasal setae brown, dilated at tip, and respectively 106-110, 140-143, 173-177, and 196-209 μ long.

ABDOMEN normal in structure; seta III on VI and VII, all setae on IX, and the terminal ones, pointed, the other major setae rounded or slightly dilated at tip, I on IX 532 μ, II 455, III 385, terminals 350; tube (X, only) about one-half the length of head, about 2.6 times as long as width near base, this width fully 2.2 times that of tip, sides straight.

MEASUREMENTS of female (holotype), in mm.: Length about 5.51 (distended, 6.74). Head, length 0.868, width across eyes 0.343, least width just behind eyes 0.263, greatest width across cheeks (exclusive of tubercles) 0.304, least width near base 0.279, width across basal collar 0.307. Prothorax, median length of pronotum 0.346, greatest width (inclusive of coxae) 0.840; mesothorax, width across anterior angles 0.868, greatest width 0.893; metathorax, greatest width 0.892. Abdomen, greatest width (at segments II and III) 0.825; tube (X, only), length 0.427, greatest subbasal width 0.165, least apical width 0.073.

Antennal segments:	I	II	III	IV	V	VI	VII	VIII
Length (μ):	127	113	336	304	308	178	133 [24]	77 [25]
Width (μ):	80	53	67	70	62	47	34	20

Total length of antenna, 1.576 mm.

MALE (macropterous). — Smaller than female (length about 4.4 mm.; distended, 5.2 mm.) but otherwise very similar throughout, with similarly sculptured metanotum and similarly setigerous tubercles on cheeks, but the tubercles 7 or 8 in number; hind tibiae normal; seta II on abdominal segment IX short and stout.

MEASUREMENTS of male (allotype), in mm.: Length about 4.41 (distended, 5.23). Head, length 0.781, width across eyes 0.308, least width just behind eyes 0.227, greatest width across cheeks 0.252, least width near base 0.234, width across basal collar

[24] Ventral length.
[25] Dorsal length.

0.248; eyes, dorsal length 0.255; postocular setae, length 0.071, interval 0.097, distance from eyes 0.113; mouth-cone, length beyond posterior dorsal margin of head 0.363. Prothorax, median length of pronotum 0.294, greatest width (inclusive of coxae) 0.644; antero-marginal setae, length 0.057, antero-angulars 0.051, midlaterals 0.353, epimerals 0.091, postero-marginals 0.084, coxals 0.060; mesothorax, width across anterior angles 0.629; metathorax, greatest width 0.603; fore wings, length 1.82. Abdomen, greatest width (at segments II and III) 0.557; tube (X, only), length 0.378, greatest subbasal width 0.125, least apical width 0.055; seta I on IX 0.420, II 0.103, III 0.252; terminal setae 0.295.

Antennal segments: (26)	I	II	III	IV	V	VI	VII	VIII
Length (μ):	93	90	245	223	221	140	105 (27)	64 (28)
Width (μ):	63	43	57	57	49	37	36	20

Total length of antenna, 1.181 mm.

Brasil: São Paulo, S.P., June 29, 1948, Lauro Travassos Filho and Ernesto Rabello, 1 ♀ (holotype) and 2 ♂'s (including allotype), from dry branches.

Allied to *bagnalli* (29) and *affinis* by the short tube, long antennal setae, large pointed setae anterior to postoculars, and the partially yellow antennae; but larger than either, with the tubercles on cheeks smaller and with their tips not projecting beyond the trichopore of the nearly terminal seta (compare Figs. 202 and 203), the metanotum very closely sculptured in basal portion (Fig. 201), and with the middle and hind tibiae yellow only in apical fifth and tenth, respectively. It is possible, of course, that this is Karny's *Acanthothrips grandis* (see Hood, Rev. Ent., 9(1-2):238; 1938).

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(26) These measurements are of the paratype.

(27) Ventral length.

(28) Dorsal length.

(29) *Eupathithrips bagnalli* Morgan (Fig. 203). — This note is introduced principally to facilitate reference to the figure given. Though Morgan described the species from one female and one male, only, additional material was taken at the same time and place by Dr. Mann, the collector. I have a specimen of each sex, determined by Morgan and bearing data identical with those which he gives for his types. It should be noted that the species has the usual white abdominal markings, not mentioned by Morgan in his description. The following additional material has been studied: PANAMA', Barro Colorado Island, C.Z. (June 25, 1933, J.D.H., 4 ♀'s from ripe fruit of Corozo Palm), and Porto Bello (July 8, 10, and 11, 1933, J.D.H., 4 ♀'s and 5 ♂'s from dead branches and leaves); COSTA RICA, Puerto Limon (March 14, 1920, James Zetek, 2 ♀'s and 1 ♂, from logs of *Ochroma limonensis*).

INDEX

This index is to the scientific names of genera, species, and higher taxa treated in Parts I-VI. The arrangement is alphabetical under suborders and families. Genera and species when not followed by the name of the authority, were described as new in these papers. R. = Revista de Entomologia (Rio de Janeiro); W. = Proceedings of the Biological Society of Washington; B. = Revista Brasileira de Entomologia (São Paulo).

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Página 163, linha 32, depois das palavras "ápice alar" acrescente-se *"Ulidiidae"*, suprimindo-se esta mesma palavra na 2.a dicotomia da chave, na linha 34.

Página 182, linha 50, onde se encontra "fifi" leia-se "fina".

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REVISIÓN PARCIAL DE LAS *PYRGOTIDAE* NEOTROPICALES Y ANTÁRTICAS, CON SINÓPSIS DE LOS GÉNEROS Y ESPECIES (*DIPTERA, ACALYPTRATAE*)

POR

MARTIN L. ACZÉL (*)

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INTRODUCCIÓN

Después de largos años de recolección y de preparación de material, se ha amontonado en la colección del Instituto Miguel Lillo una cantidad relativamente considerable de dípteros de esta familia. Oportunidad rara, porqué muy probablemente por causas biológicas, los adultos de *Pyrgotidae* están en general muy escasamente representados em las colecciones, y por consiguiente la preponderante parte de las especies fué descripta sobre un sólo o muy pocos ejemplares. Según el eminente dipterólogo norteamericano, J. R. Malloch (1929, 250) "it is rarely the case that a series of any considerable extent are found in collections, and consequently it is difficult to arrive at a decision as to the significance of variations in hairing and chaetotaxy, as well as in markings, in available specimens".

Talvez ocurre por primera vez, que una nueva especie de *Pyrgotidae,* como *Leptopyrgota annulata,* fué descripta sobre la base de más que 20 ejemplares de ambos sexos. Después de una

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examinación minuciosa de todos los ejemplares disponibles de la especie mencionada, el autor llegó a la conclusión, que la variación individual de los caracteres sistemáticos no es más ni menos amplia en las *Pyrgotidae* que en las familias vecinas de *Otitiformes*.

El autor ha ejecutado todas las figuras con cámera clara, empleando las siguientes ampliaciones de su binocular Zeiss: 25x, 40x, y 100 x. Las figuras dibujadas con la misma ampliación son comparables en el tamaño, porqué todos han sido reducidos a la mitad, como en todos los trabajos anteriores del mismo autor. Todas las medidas fueron realizadas con micrómetro ocular.

El autor, agradeciendo, quiere dejar constancia de la gentil colaboración de los siguientes entomólogos, quiénes le han facilitado material y literatura: Dr. Messias Carrera (Departamento de Zoologia, São Paulo), Dr. Willi Hennig (Deutsches Entomologisches Institut, Berlin-Friedrichshagen), Dr. Fred Keiser (Naturhistorisches Museum, Basel), Dr. J. Lane (Faculdade de Higiene e Saúde Pública, Universidade de São Paulo), Dr. A. da Costa Lima (Instituto Oswaldo Cruz, Manguinhos, Rio de Janeiro), Dr. John R. Malloch (Tampa, Florida), Ricardo N. Orfila (Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires), Dr. W. Weyrauch (Universidad Nacional Mayor de San Marcos, Lima).

BREVE HISTORIA DE LA FAMILIA

En 1830 Wiedemann (Aussereur. zweifl. Ins.) introdujó el nombre genérico *Pyrgota* para su especie neártica *Myopa undata* Wiedemann 1803 (*Myopa* es un género de *Conopidae*), y colocó ese nuevo género entre los géneros *Tetanocera* y *Platycephala*. Más tarde Macquart (1843 y 1850) y Loew (1873) establecieron varios géneros, pero fué Loew, quién en su excelente obra sobre "The family Ortalidae" (en su Monogr. Dipt. N. Amer. 3, 1873) delimitó por primera vez la familia sistemáticamente, como un grupo bien caracterizado de las *Otitidae*. Sin embargo Schiner fué el primero en introducir en la literatura la denominación *Pyrgotinae*. Actualmente la mayoria de los autores le dan rango de familia.

Sobre la posición sistemática de la familia, algunos autores formularon opiniones muy diversas. Ya Hendel (1908) y de Meijere (1916) destacaron los paralelismos morfológicos interesantes, existentes entre *Pyrgotidae* y *Conopidae*. Malloch (1933) sobreestimando esos paralelismos, quería sacar la familia del grupo de familias *Otitiformes*, colocándola cerca de *Conopidae*, además, según el mismo autor (Malloch 1929, 1933) las tribus *Toxurini* y *Teretrurini* pertenecen a la familia *Otitidae*. Poco más tarde Hen-

del (1935) separó los géneros *Lochmostylia* y *Tauroscypson* de la familia, creando para ellos la nueva familia *Lochmostyliidae*.

En la actualidad ya existem pocos autores que no consideran *Toxurinae, Teretrurini* o *Lochmostyliinae* como grupos integrantes de la familia *Pyrgotidae*.

A los géneros iniciales se sumaron varios otros, y el grupo, más tarde subfamilia, constituyó con el tiempo una familia bien definida entre los *Acalyptratae*, en el grupo de familias *Otitiformes* (= *Ortalidiformes* Frey, *Tephritoidea* Hendel o *Otitoidea* Hennig).

En una serie de importantes trabajos Hendel, más tarde Bezzi y Malloch, han establecido las bases de la sistemática actual de la familia. Entre los demás autores modernos que se han ocupado con las *Pyrgotidae* de América Central y de Sur, pueden señalarse a Wulp, Frey, Becker, Lutz y Costa Lima, Hennig, Hering, Souza Lopes, Enderlein y Keiser.

POSICIÓN SISTEMÁTICA

El aedeago espiralmente arrollado y el oviscapo cónico de gran tamaño, habitualmente con la parte basal muy ensanchada, las coloca en el grupo de familias *Otitiformes*. Otros caracteres, como v.g. el recorrido de la subcosta em *Toxurinae*, la forma de la célula anal en la mayoría de las especies, el margen apical del pedicelo escotado de la mayoría de géneros de *Toxurinae*, colocaron las *Pyrgotidae* muy cerca de la familia *Trypetidae*, familia de la cual la separan principalmente diferencias biológicas. *Pyrgotidae* y *Trypetidae* evolucionaron sin duda de una raíz común hacia direcciones divergentes.

Como diferencias morfológicas entre las familias vecinas y *Pyrgotidae*, las cuales tienen (por lo menos en parte) en común el caracter de que la costa no está interrumpida en el ápice de la subcosta, se suelen indicar las siguientes (según Hendel):

— Cara superior de la nervadura r_1 desnuda; 1ª célula posterior (R_5) se estrecha hacia el ápice alar
— Cara superior de la r_1 pilosa; célula R_5 no se estrecha hacia el ápice alar. *Ulidiidae*
  — Celda subcostal (*Csc* = estigma) amplia y larga. Foveas antenales ausentes o mal delimitadas *Pterocallidae*
  — Celda *Csc* normal hasta pequeña. Foveas antenales bien delimitadas, o lámina mesofacial cóncava.
    — Cerda propleural (*prpl*) y 2 pares supraalares (*sa*) presentes ..... *Otitidae*
    — Cerda *prpl* y el par *sa* anterior ausentes.
      — Escapo y pedicelo no son prolongados, antena entre ellos no está geniculada. Ocelos siempre están presentes. Oviscapo pequeño, deprimido y plano ..... *Platystomidae*

— Escapo y pedicelo prolongados, antena está geniculada entre ellos. Ocelos frequentemente ausentes. Oviscapo de tamaño grande, subcónico; puede ser poco deprimido pero nunca aplastado ..... *Pyrgotidae*

Como se ve, bajo el nombre *Pyrgotidae* hay que entender solamente *Pyrgotinae*, y según esta clave la única diferencia entre *Lochmostyliinae y Platystomidae* sería la ausencia de los ocelos en *Lochmostyliinae*.

Las diferencias más importantes entre *Pyrgotidae* y *Trypetidae*, se puede señalar como sigue:

Costa con quebradura en el sitio donde la nervadura subcostal (*sc*) la alcanza. En la frente cerdas orbitales inferiores (*ori*) siempre presentes. Oviscapo en general pequeño, su parte basal nunca está llamativamente ensachada, ni comprimida. Propleuras normales, no salientes o provistas de pelos erguidos y arqueados hacia arriba. Preabdomen nunca peciolado ..... *Trypetidae*

Costa sin o con (*Descoleia, Teretrura, Leptopyrgota, Carrerapyrgota*) interrupción en este sitio. *Ori* siempre ausentes. Oviscapo de tamaño grande, con la base muy ensanchada, o (en *Neopyrgota* s. str.) comprimida, o (en *Lochmostyliinae*) es relativamente pequeño y deprimido. Propleuras forman una carena vertical roma y están provistas de pelos erectos y setiformes, arqueados hacia arriba. Preabdomen en grado variable pero siempre peciolado. ..... *Pyrgotidae*

El autor prescinde de caracterizar detalladamente la familia, de intentar a elaborar la morfología comparada de los géneros, o de sacar conclusiones sistemáticas o filogenéticas en el presente trabajo, no conociendo aún varios géneros y especies.

En lo que se refiere a la opinión de los varios autores sobre los grupos principales de la *Pyrgotidae*, lo más oportuno y claro es reunirlas en la siguiente agrupación:

Malloch (1929, 1934): *Otitidae* (*Toxurini* + *Teretrurini*); *Pyrgotidae* (= *Pyrgotini*).

Hendel (1934, 1935) y Enderlein (1942): *Pyrgotidae* = *Toxurinae* + *Pyrgotinae* (= *Teretrurini* + *Pyrgotini*); *Lochmostyliidae*.

Keiser (1951): *Pyrgotidae* = *Toxurinae* + *Pyrgotinae* (= *Teretrurini*+*Pyrgotini*); *Lochmostyliinae*.

El autor acepta la división sistemática interna de Keiser, pero coloca la subfamilia *Toxurinae* sobre una base morfológica distinta. La bien delimitada subfamilia *Lochmostyliinae* de Keiser, in-

cluye aparentemente formas muy especializadas, con un grado llamativamente elevado del dimorfismo sexual, que se manifiesta muy marcadamente en la arista antenal, forma de cabeza, diseño alar, etc. El autor acepta *Lochmostyliinae* como subfamilia, porqué difiere considerablemente de las *Toxurinae* y *Pyrgotinae,* por tener antenas cortas y rectas, no geniculadas, la lámina mesofacial muy ampliamente desarrollada, el oviscapo pequeño, deprimido y poco aplastado, con los bordes laterales levemente enrollados hacia arriba, y las partes bucales muy reducidas. De todas maneras, la división de la familia en estas tres subfamilias parece ser la más natural y acertada. Parece que ya hace largo tiempo se hubieran extinguido las formas transitorias entre *Lochmostyliinae* y las otras dos subfamilias.

Entre todos los grupos naturales de las *Pyrgotidae,* la tribus *Pyrgotini* abarca las formas más diversas y el mayor número de las especies.

La familia *Pyrgotidae* representa un grupo natural, una entidad filogenética dentro del grupo de familias *Otitiformes* (*Acalyptratae*), y está aparentemente la más cercanamente emparentada con la familia *Trypetidae,* através de *Toxurinae* (*Pyrgotidae*) y *Dacinae* (*Trypetidae*), ambas distribuidas en las regiones australiana y etiópica.

CARACTERES DE LA FAMILIA

Cabeza relativamente grande, tan ancha que el tórax. Frente entre los ojos casi siempre levemente hundida. Parte inferior del occipucio hinchada. Cerdas cefálicas y torácicas a menudo muy reducidas, cerdas orbitales inferiores (*ori*) y vibrisas (*vi*) siempre ausentes, postverticales (*pvt*) divergentes, si presentes. Ocelos casi siempre faltan. Foveas antenales bien marcadas, completamente unidas, o separadas por una carena desarrollada en grado variable, desde apenas perceptible hasta ancha y lameliforme. Antenas en *Toxurinae* y *Pyrgotinae* relativamente largas, dirigidas hacia adelante, y entre el escapo y pedicelo están geniculadas hacia abajo, con arista dorsal normal, desnuda o microscópicamente pubescente; en *Lochmostyliinae* cortas y rectas, no geniculadas y en el sexo femenino con la arista ramulosa en forma de abanico.

Parte externodorsal del margen apical del postpedicelo recto, o escotado (solamente en *Toxurinae*) como en *Trypetidae* y *Otitidae.* Esta escotadura es leve y ancha, apenas notable en *Teretrurini.*

Tórax relativamente corto; propleuras poco salientes en forma de una carena vertical ancha y roma, provistas de pelos erectos, encorvados hacia arriba. Escutelo corto y ancho. La longitud

máxima del tórax se debe medir hasta el límite posterior del mediotergito("metanoto"), y no hasta el ápice del escutelo como en las famílias vecinas. Cerdas propleurales (*prpl*) siempre ausentes.

Patas: tibias sin cerdas preapicales. Empodios más o menos setiformes y desnudos, o poco menos setiformes hasta líneales muy angostas con la cara ventral entera o parcialmente pilosa, como en *Otitidae*.

Alas grandes y largas. Costa (*c*) alcanza el ápice de la 4ª nervadura (m_1), tornándose poco distal del ápice de la 3ª (r_{4+5}) repentinamente más débil; o no alcanza la m_1 sino desaparece totalmente poco distal de la r_{4+5}. Célula subcostal (*Csc*) o estigma largo triángular; la 2ª nervadura (r_{2+3}) es muy larga y puede estar provista de un corto apéndice de nervadura, como también, aunque más rara vez, la última sección de la m_1, cerca de la nervadura transversal posterior (*tp*). Subcosta (*sc*) larga, alcanza en un ángulo múy agudo la costa, o desaparece poco antes de alcanzarla, o (*Toxurinae*) termina como en las *Trypetidae*.

Preabdomen con 5 (♂), o con 6 (♀) segmentos completos; es más o menos largamente peciolado por el 1º + 2º segmento alargado. Esternitos reducidos hasta una cinta más o menos angosta, la membrana lateral (o pleural) está ampliamente desarrollada porqué el ancho de los tergitos es habitualmente también reducido. Aedeago (pene con sus apéndices) espiralmente arrollado. Epandrio y surestilos (*ss*) parecidos a los de *Trypetidae*, pero los cercos están siempre bilobados. Oviscapo (o parte basal del ovipositor) de tamaño relativamente grande, abultado, cilíndrico-cónico de una base muy ancha en *Pyrgotinae*, solamente en *Neopyrgota* (*Neopyrgota*) es comprimido; nunca está cubierto por el 6º tergito. En cambio el oviscapo en *Lochmostyliinae* es relativamente pequeño y deprimido (dorsoventralmente aplastado) con los márgenes laterales levemente enrollados hacia arriba; su parte basal está cubierta por el 6º tergito, como en las familias vecinas.

FUNDAMENTOS DE UNA MORFOLOGÍA COMPARADA DE LAS FORMAS NEOTROPICALES Y ANTÁRTICAS

El texto siguiente, así como el capitulo anterior, contienen muchos datos morfológicos nuevos, y siendo esquemático, oferece una base para incluir nuevos datos y para perfeccionar antiguos.

Tamaño: Cuerpo de las especies examinadas 5,7 — 15,7 mm de largo (hembras sin ovipositor). El orden de las especies revisadas según el largo del cuerpo (desde la más grande hasta la más pequeña) es la siguiente: *Leptopyrgota costalimai* n. sp. 15,7, *Pyrgota ilona* n. sp. 14,3, *Leptopyrgota méhelyi* n. sp. 11,9 - 11,5, *Pyrgota longipes* Hendel 11,6, *Leptopyrgota nigrifrons* n. sp.

11,8 - 11,1, *Descoleia teretrura* n. g., n. sp. 11,4, *Tauroscypson andina* n. sp. 11,1 - 10,4, *Carrerapyrgota miliaria* n. g., n. sp. 10,2 - 7,8,*Stenopyrgota crassitibia* n. sp. 10,2 - 8,7, *Idiopyrgota setiventris* n. g., n. sp. 9,5 - 8,9, *Neopyrgota falciterebra* Hennig 9,3 - 9,2, *Leptopyrgota pulchra* n. sp. 9,2, *L. apilosa* n. sp. 8,4, *Neopyrgota calcarata* Hendel 8,0, *Leptopyrgota albitarsis* n. sp. 8,0 - 6,5, *L. annulipes* n. sp. 6,9 - 5,7, *Teretrura flaveola* Bigot, 6,7, *Neopyrgota hennigi* n. sp. 6,5, *Leptopyrgota minuta Hennig* 5,7 mm.

El orden de las especies revisadas según el largo del tórax (método de Dr. A. Stone): *Pyrgota ilona* 4,4, *Leptopyrgota costalimai* 4,3, *L. méhelyi* 4,1 - 3,8, *Idiopyrgota setiventris* 3,8 - 3,3, *Neopyrgota falciterebra* Hennig 3,7 - 3,4, *Pyrgota longipes* 3,6 - 3,3, *Descoleia teretrura* 3,5, *Leptopyrgota nigrifrons* 3,5 - 3,5, *Tauroscypson andina* 3,3 - 2,9, *Carrerapyrgota miliaria* 3,2 - 3,0, *Leptopyrgota pulchra* 3,1, *Teretrura flaveola* 2,8, *Neopyrgota calcarata* 2,8, *Leptopyrgota albitarsis* 2,8 - 2,3, *L. apilosa* 2,7, *Neopyrgota hennigi* 2,4, *Stenopyrgota crassitibia* 2,4 - 2,2, *Leptopyrgota annulipes* 2,2, - 1,9, *L. minuta* 2,1 mm.

La longitud de las alas es variable asimismo dentro de los límites de las especies, en general más o menos evidentemente mayor que la longitud del cuerpo (sin oviscapo): 7,0 - 16,7 mm; solamente en *Descoleia teretrura* ♀, *Stenopyrgota crassitibia* ♀, *Carrerapyrgota miliaria* ♂ el cuerpo es poco más largo que la longitud alar, y en *Idiopyrgota setiventris* ♀ esta relación es variable. El ala en general es 2,4 hasta 3,3 veces más larga que ancha.

El colorido del cuerpo habitualmente es claro; en la mayoría de especies la cabeza y el tórax son de color amarillo tostado hasta rojo pardusco (*Descoleia teretrura*) o pardo obscuro con um fino diseño amarillo tostado (*Carrerapyrgota*), mientras tanto el abdomen puede tener un colorido más obscuro. Por lo menos el tórax y el abdomen son pardo obscuros y relucientes en las especies examinadas de *Neopyrgota*. Según las descripciones originales, sólamente las especies *Pyrgota lugens* Wulp y *Lopadops nigerrima* Enderlein tienen todo el cuerpo negro; hasta sus alas son ennegrecidas.

Cabeza: La forma de la cabeza es variable en los representantes de esta familia en ambas regiones sudaméricanas. Sólamente en *Descoleia teretrura* y *Stenopyrgota crassitibia* es más larga que ancha o alta; en varias especies es más ancha que larga o alta (*Teretrura flaveola, Pyrgota longipes, P. ilona, Idiopyrgota setiventris, Neopyrgota falciterebra, Leptopyrgota albitarsis* ♀, *L. costalimai*), en varias otras especies la cabeza en medida variable más alta que larga o ancha: *Leptopyrgota albitarsis* ♂, *L. annulipes* ♂, *L. apilosa, L. méhelyi, L. minuta, L. nigrifrons, L. pulchra, Neopyrgota hennigi, N. calcarata, Carrerapyrgota miliaria, Tauros-*

cypson andina. En *Leptopyrgota annulipes* ♀ casi tan larga como ancha o alta.

La forma de las foveas antenales da un caracter importante en esta familia; las foveas están completamente unidas, sin el resto mínimo de una carena en *Teretrura* Bigot, *Pyrgotosoma* Malloch, *Stenopyrgota* Malloch, *Lopadops* Enderlein, *Apyrgota* Hendel, *Leptopyrgota* Hendel y *Carrerapyrgota* n. gen.; están separadas por una carena insignificante en *Neopyrgota* Hendel, y por una carena mejor desarrollada, hasta lameliforme en *Tropidothrinax* Enderlein, *Pyrgota* Wiedemann, *Stirothrinax* Enderlein e *Idiopyrgota* n. gen.

Ojo, visto de perfil, solamente en *Stenopyrgota crassitibia* n. sp. es casi tan largo como ancho, en todas las demás especies examinadas es más o menos evidentemente (hasta 2 veces) más alto que largo. Occipucio, visto de perfil, solamente en *Descoleia teretrura* n. gen., n. sp. y *Teretrura flaveola* Bigot es aproximadamente tan ancho que la longitud del ojo, en todas las demás especies examinadas es en grado variable menos ancho que la longitud ocular. Mejillas solamente en *Tauroscypson andina* n. sp. son casi tan anchas que la altura ocular, en todas las demás especies examinadas son en grado variable menos anchas que la altura ocular; las más angostas son en *Teretrura flaveola* Bigot, (ojo 5,5 veces más alto que las mejillas).

Frente, entre los ojos, está levemente hundida, excepto en *Tauroscypson andina* n. sp.; su parte anterior saliente es poco convexa y está provista de pelos. Los ocelos están presentes en todas las especies de *Toxurinae* y *Teretrurini*, y ausentes en todas las especies de *Pyrgotini* y de *Lochmostyliinae* de esta área.

Midiendo el lado dorsal de las antenas, el postpedicelo es en medida variable más largo que el pedicelo en *Descoleia teretrura, Teretrura flaveola, Stenopyrgota crassitibia, Pyrgota longipes, P. ilona, Carrerapyrgota miliaria*. En *Neopyrgota falciterebra* e *Idiopyrgota setiventris* el postpedicelo es casi tan largo como el pedicelo, y en todas las demás especies revisadas en medida variable es más corto que el pedicelo.

Midiendo las antenas en su lado ventral, el postpedicelo sin excepción, en todas las especies examinadas es en grado variable más largo que el pedicelo.

La arista es micropubescente, parece áspera; en las *Teretrurini* examinadas está colocada poco distal de la mitad (*Teretrura flaveola*); en *Toxurinae* en la 1/6 parte basal (*Descoleia teretrura*) de la longitud del postpedicelo; en las *Pyrgotini* está colocada em la 1/4 parte de la longitud y en el 1/3 apical del margen dorsal en *Leptopyrgota costalimai*, y *L. méhelyi;* en el 1/3 apical de la longitud y aproximadamente en la mitad del margen apical en *Leptopyrgota albitarsis, L. annulipes, L. apilosa, L. minuta* y *L. nigri-*

frons; en las 2/7 partes apicales de la longitud y en las 2/5 partes apicales del margem dorsal en *Leptopyrgota pulchra;* en la mitad de la longitud del postpedicelo y en las 2/5 partes basales del margen apical en *Idiopyrgota setiventris*; en la mitad de la longitud y aproximadamente en el 1/3 basal del margen apical en *Pyrgota ilona, P. longipes, Stenopyrgota crassitibia, Neopyrgota calcarata, Carrerapyrgota miliaria;* en la mitad de la longitud y en la 1/4 parte basal del margen dorsal en *Neopyrgota falciterebra,* o en la 1/5 parte basal del margen dorsal en *N. hennigi.*

Descoleia teretrura n. gen., n. sp. es el único género y especie en el continente americano de *Pyrgotidae,* cual está provista de una incisión externodorsal en el margen apical del pedicelo, como en *Trypetidae,* caracter esencial de la subfamilia *Toxurinae.*

Tórax. Siempre es más largo y alto que ancho, levemente comprimido, y tan largo como alto o poco más largo que alto, excepto en *Neopyrgota calcarata* Hendel, cual especie tiene el tórax evidentemente más alto que largo.

Es caracteristico para las *Pyrgotidae,* que el punto más posterior del tórax no es el ápice del escutelo (escudete) sino el límite posterior del mediotergito (metanoto). La forma del basisterno (+ presterno), además la presencia o ausencia de una pilosidad o cerditas sobre él, pueden presentar también carácteres muy útiles para fines sistemáticos.

El postescutelo es muy reducido y falta prácticamente porqué no está separado del mediotergito por una sutura en *Carrerapyrgota* n. gen. y *Tauroscypson* Curran; muy reducido y angosto pero está separado del mediotergito por una leve sutura en *Stenopyrgota* Malloch, y es normalmente desarrollado en los demás géneros examinados (*Teretrura, Descoleia, Pyrgota, Leptopyrgota, Neopyrgota* y *Idiopyrgota*).

Alas: La costa se torna repentinamente muy débil y fina, poco distal del ápice de la r_{4+5}, pero llega hasta el ápice de la m_1 en todos los géneros sudaméricanos, excepto *Carrerapyrgota* n. gen., en el cual termina poco distal del ápice de la r_{4+5}, no alcanzando el ápice de la m_1; simultáneamente la última sección de la m_1 en este género se torna paulatinamente más débil hacia distal y desaparece en forma de un pliegue fino, antes de alcanzar el margen alar.

La 2ª sección costal, en general es considerablemente más larga que las demás, excepto en las especies examinadas del género *Pyrgota,* en el cual la célula marginal (R_1 o *Cm*) es mucho más corta que en los demás géneros; la 2ª sección costal solamente poco más larga que la 3ª en *P. longipes* Hendel; la especie *P. ilona* n. sp. es la única entre todas las especies examinadas, en la cual la 3ª sección costal considerablemente más larga que la 2ª.

La 1ª sección costal en casi todas las especies examinadas es

en medida variable más larga que la 3ª, excepto las especies de *Pyrgota* examinadas y *Tauroscypson andina* n. sp., con la 3ª sección considerablemente más larga que la 1ª, además *Leptopyrgota annulipes* n. sp. y *L. pulchra* n. sp., con la 3ª sección levemente más

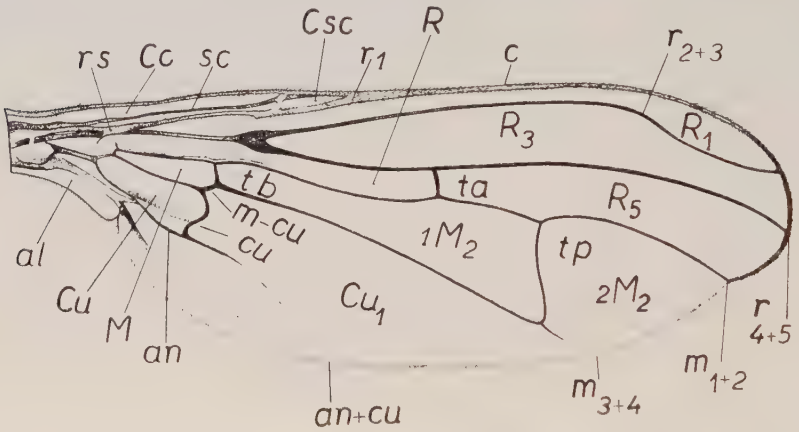

Fig. A — Ala de *Leptopyrgota méhelyi* n. sp. ♀, esquemáticamente.

LISTA DE ABREVIATURAS:

1.) Nervaduras: *c* costa; *sc* subcosta; *rs* sector radial; r_1 1ª longitudinal; *r* 2ª longitudinal; r_{4+5} 3ª longitudinal; m_{1+2} 4ª longitudinal; m_{3+4} 5ª longitudinal; *cu* cubital; *an* anal; *cu* + *an* cubitoanal.

2.) Nervaduras transversales: *th* transversal humeral; *ta* o *r-m*, anterior o radiomedial; *tp* o *m-m*, posterior o medial; *tb* basal; *m-cu* mediocubital

3.) Células: Cc_1 y Cc_2 1.ª y 2ª costal; *Csc* estigma, o subcostal; *R* o Cb_1 1ª basal; R_1 o *Cm* marginal; R_3 o *Csm* submarginal; R_5 o Cp_1 1ª posterior; *M* o Cp_2 2ª basal; $1M_2$ o *Cd* discoidal; $2M_2$ o Cp_2 2ª posterior; *Cu* anal, o cubital; Cu_1 o Cp_3 3ª posterior; *al* álula, o lóbulo axilar.

(Original de O. Córdoba)

larga que la 1ª. En los machos de *Leptopyrgota albitarsis* n. sp., y principalmente en *Carrerapyrgota miliaria* n. gen., n. sp. la 1ª sección es poco más larga que la 3ª, pero en las hembras de las mismas especies, y principalmente de *Neopyrgota falciterebra* Hennig, ese caracter es variable, en un ejemplar puede ser poco más larga, en otro poco más corta.

La 3ª sección costal es generalmente en medida variable más larga que la 4ª, pero en *Teretrura flaveola* Bigot y *Leptopyrgota méhelyi* n. sp. es levemente más corta que la 4ª sección.

En la mayoría de las especies, la sección prebasal de la 4.ª nervadura (m_1) es más o menos más larga que la mediana, por consiguiente la nervadura transversal anterior (*ta*) está situada distal de la mitad de la célula discoidal (*Cd*); ambas secciones

son subiguales en *Descoleia teretrura*, y la sección mediana es evidentemente más larga que la prebasal en *Teretrura flaveola* Bigot y *Stenopyrgota crassitibia* n. sp., en las cuales especies la *ta* está colocada entonces proximal de la mitad de la *Cd*.

La *ta* está situada llamativamente cerca de la nervadura transversal posterior (*tp*) en ambas especies de *Tauroscypson* Curran, la distancia entre *ta* y *tp* siendo apenas mayor que la longitud de la *ta*, pero nítidamente menor que la longitud de la *tp*.

En la cara superior del ala, la 3ª nervadura longitudinal (r_{4+5}) lleva una hilera de diminutas cerditas desde la base hasta por lo menos la *ta* en los géneros *Descoleia* n. gen., *Pyrgota* Wiedemann y *Stirothrinax* Enderlein; completamente desnuda o lleva solamente 1-3 cerditas cerca de la base, en todos los demás géneros examinados.

La célula anal es pequeña en esta familia; la 2ª rama de la 5ª nervadura (cu_2), la cual cierra apicalmente la célula, es recta en los géneros *Stenopyrgota* Malloch y *Lopadops* Enderlein, es más o menos encorvada en forma de una S en todos los demás géneros revisados.

El álula está muy reducido y angosto en los géneros *Stenopyrgota* Malloch, *Lopadops* Enderlein y *Leptopyrgota* Hendel, lobuloso y más o menos ancho en los demás géneros revisados.

La costa está interrumpida poco distal del ápice de la nervadura transversal humeral (*th*) en todas las especies examinadas, es decir en um trecho muy corto, casi puntiforme, es más delgada, casi hialina y carece de cerditas. En las especies de los géneros *Descoleia, Teretrura, Leptopyrgota* y *Carrerapyrgota,* la costa está nítidamente interrumpida de la misma manera también en el ápice de la subcosta (como en *Trypetidae*).

Escamas líneales, en forma de una cinta muy angosta; la escama alar es siempre poco menos angosta que la torácica, hasta puede ser levemente lobada, y habitualmente lleva 1-2 hilera de pelos finos y relativamente largos, marginales (cilia), excepto en *Stenopyrgota crassitibia* n. sp. en la cual especie la escama alar no lleva cilias. La escama torácica está desprovista de cilias en todas las especies revisadas, con la única excepción de *Carrerapyrgota miliaria* n. gen., n. sp., especie en la cual la escama torácica también lleva cilias.

Patas: Son relativamente finas y alargadas en las especies de *Teretrura* Bigot, *Leptopyrgota* Hendel, en *Pyrgota ilona* y *P. longipes,* mientras tanto en *P. lugens* Wulp y en todos los demás géneros y especies son normales. Las tibias de ambas especies de *Stenopyrgota* Malloch están considerablemente engrosadas, excepto en la base.

La correlación en el largo de las partes de las patas en las especies examinadas fueron reunidas en el cuadro siguiente:

ESPECIES	PATA ANTERIOR			PATA INTERMEDIA			PATA POSTERIOR		
	FÉMUR	TIBIA	TARSOS	FÉMUR	TIBIA	TARSOS	FÉMUR	TIBIA	TARSOS
Teretrurini:									
Teretrura flaveola ♀	2,45	2,59	2,38	2,77	2,81	2,50	3,32	3,12	2,86
Toxurinae:									
Descoleia teretrura ♀	2,70	2,70	—	3,45	3,45	2,85	3,86	3,59	3,22
Pyrgotini:									
Pyrgota ilona ♀	4,68	4,70	3,54	6,49	7,42	6,26	8,20	7,35	6,58
P. longipes ♂	3,36	3,30	2,95	4,60	4,63	3,86	5,68	5,09	3,97
P. longipes ♀	3,38	3,36	2,72	4,60	4,83	3,82	5,76	5,42	4,22
Stenopyrgota crassitibia ♀	2,32-2,61	2,50	1,93	2,85-3,18	3,18-3,63	2,04-2,18	3,98-4,31	4,27-4,58	2,18 2,31
Leptopyrgota albitarsis ♂	2,38	2,59	2,50	3,70	3,61	3,16	4,48	3,88	3,32
Leptopyrgota albitarsis ♀	2,09-2,13	2,25-2,23	2,18-2,30	3,50-3,45	3,36-3,41	2,97-2,86	4,18-4,11	3,45-3,41	3,00-3,10
L. annulipes ♂	1,85-1,85	1,95-1,95	1,93-1,91	3,32-3,04	2,86-2,82	2,22 2,20	3,66-3,63	3,07-3,04	2,61-2,54
L. annulipes ♀	1,88-2,20	2,00-2,34	1,91-2,29	3,09-3,59	2,82-3,22	2,41-2,81	3,68-4,20	3,07-3,61	2,80-3,16
L. apilosa ♀	2,45	2,72	2,77	2,86	2,91	2,50	4,13	3,70	3,59
L. costalimai ♀	4,88	5,34	5,63	9,20	8,18	8,52	11,25	8,18	8,86
L. méhelyi ♂	3,59	4,00	3,63	6,33	5,86	4,43	7,26	6,00	4,67
L. méhelyi ♀	4,11-4,18	4,58-4,50	3,68-4,13	6,85-7,13	6,26-6,39	5,76-5,81	7,95-8,17	6,45 6,54	6,31-6,26
L. minuta ♀	2,02	2,25	2,25	3,13	3,09	2,63	4,04	3,45	2,86
L. nigrifrons ♂	2,75	2,90	2,80	4,72	4,54	4,18	5,95	5,00	3,63
L. nigrifrons ♀	3,18	3,45	3,36	5,30	5,08	4,27	6,22	5,31	4,81
L. pulchra ♀	3,32	3,45	3,18	5,35	5,13	4,95	6,27	5,58	5,72
Neopyrgota calcarata ♀	2,34	2,36	2,09	2,36	2,34	2,27	2,72	2,80	2,36
N. falciterebra ♀	3,09-3,04	3,00-3,02	3,00-2,68	3,41-3,52	3,36-3,38	2,95-3,04	3,93-4,09	4,04-3,63	3,40-3,13
N. hennigi ♂	1,86	1,77	1,81	2,20	2,13	1,88	2,22	2,13	1,95
Idiopyrgota setiventris ♀	2,81-3,50	2,59-3,54	2,45-2,63	3,50-3,54	3,36-3,47	2,45-2,63	3,50-3,54	3,11-3,18	2,52-2,72
Carrerapyrgota miliaria ♂	2,68	2,38	2,54	3,02	2,91	2,68	3,31	2,91	2,88
Carrerapyrgota miliaria ♀	2,41 2,68	2,27-2,38	2,34-2,77	— -2,91	— -2,95	— -2,91	2,88-3,00	2,68-2,70	2,59-2,90
Lochmostyliinae:									
Tauroscypson andina ♀	3,13-3,09	2,91-3,40	—	3,45-3,41	— -3,77	— -3,41	4,20-3,95	4,41-4,20	3,52-3,79

Tibias posteriores en um trecho corto están dorsalmente escotadas en todas las especies examinadas de los géneros *Teretrura* Bigot, *Pyrgota* Wiedemann, *Leptopyrgota* Hendel, *Lopadops* Enderlein y *Tauroscypson* Curran, en cambio las tibias posteriores de las especies examinadas de *Descoleia, Stenopyrgota, Neopyrgota, Idiopyrgota* y *Carrerapyrgota* carecen completamente de una escotadura dorsal.

En *Descoleia* (*Toxurinae*), en todas las especies de *Teretrurini* y en *Tauroscypson andina* n. sp. de *Lochmostyliinae*, el empodio es líneal muy delgado, y su cara ventral en todo el largo piloso; en *Pyrgotini* más o menos setiforme, excepto la mayoría de las especies de *Leptopyrgota* Hendel, en las cuales el 1/3 - 2/3 parte basal del empodio es piloso. El autor tiene bases para suponer que el empodio de todas las especies de *Lochmostyliinae* es piloso en todo su largo, aunque en las descripciones de las demás especies de esa subfamilia no se menciona este caracter.

En todas las especies examinadas de esta familia, la 2/3 hasta 1/2 parte basal de las uñas simples y encorvadas, son de un color amarillo pardusco hasta pardo obscuro, mate, con la superficie microscópicamente pilosa, solamente sus 1/3 hasta 1/2 apical es negra y brilhante. Ese constituye tal vez un carácter general de la familia.

La longitud total de las patas en las especies examinadas fué reunido en el cuadro siguiente:

ESPECIES	LONGITUD TOTAL DE LAS PATAS		
	ANTERIOR	MEDIANA	POSTERIOR
Toxurinae:			
Descoleia teretrura ♀	—	9,75	10,67
Teretrurini:			
Teretrura flaveola ♀	7,42	8,02	9,30
Pyrgotini:			
Pyrgota ilona ♀	12,82	20,17	22,13
P. longipes ♂	9,61	13,09	14,74
P. longipes ♀	9,46	13,25	15,40
Stenopyrgota crassitibia ♀	6,75	8,07- 8,99	10,43-11,20
Leptopyrgota albitarsis ♂	7.47	10,47	11,68
Leptopyrgota albitarsis ♀	6,52- 6,66	9,83- 9,72	10,63-10,62
L. annulipes ♂	5,73- 5,71	8,30- 8,06	9,34- 9,21
L. annulipes ♀	5,79- 6,83	8,32- 9,62	9,55-10,97
L. apilosa ♀	7,94	8,27	11,42
L. costalimai ♀	15,85	25,90	28,29
L. méhelyi ♂	11,22	16,62	17,93
L. méhelyi ♀	12,37-12,81	18,87-19,33	20,71-20,97
L. minuta ♀	6,52	8,85	10,35
L. nigrifrons ♂	8,45	13,44	14,58
L. nigrifrons ♀	9,99	14,65	16,34
L. pulchra ♀	9,95	15,43	17,57

ESPECIES	LONGITUD TOTAL DE LAS PATAS		
	ANTERIOR	MEDIANA	POSTERIOR
Neopyrgota calcarata ♀	6,79	6,97	7,88
N. falciterebra ♀	9,09- 8,74	9,72- 9,94	11,37-10,85
N. hennigi ♂	5,44	6,21	6,30
Idiopyrgota setiventris ♀	7,85- 9,67	9,31- 9,64	9,13- 9,44
Carrerapyrgota miliaria ♂	7,60	8,61	9,10
Carrerapyrgota miliaria ♀	7,02- 7,83	— - 8,77	8,15- 8,60
Lochmostyliinae:			
Tauroscypson andina ♀	—	— -10,59	12,13-11,94

Preabdomen. — En todas las especies examinadas ambos tergitos basales están firmemente unidos, constituyendo el 1º+2º síntergito, no se halla membrana intersegmental entre ellos; el lugar de la unión está marcada por una fina sutura superficial. En todos los ejemplares examinados de *Leptopyrgota albitarsis n.* sp., *L. annulipes* n. sp., *L. apilosa* n. sp., *Neopyrgota* (*Neopyrgota*) *calcarata* Hendel y *N.* (*N.*) *falciterebra* Hennig, el 3º tergito está tan firmemente unido al 1º+2º síntergito, como el 1º tergito al 2º.

Ambos esternitos basales están también completamente unidos en todas las especies examinadas de *Pyrgotini* y *Lochmostyliinae,* formando el 1º+2º sínesternito. En cambio, en las especies examinadas de *Teretrurini* (*Teretrura flaveola Bigot*) y *Toxurinae* (*Descoleia teretrura* n. g., n. sp.) el 1º esternito está bien visiblemente separado del 2º por membrana intersegmental; parece bien probable que ese caracter resultará ser general en *Teretrurini* (?y talvez también en *Toxurinae?*).

El último (5º) tergito del macho es en medida variable más largo que el penúltimo (4º); el 5º tergito es aproximadamente 1, 2 veces más largo que el 4º en *Leptopyrgota annulipes* n. sp., *L. méhelyi* n. sp., y *Carrerapyrgota miliaria* n. g., n. sp.; 1, 4 veces más largo en *Pyrgota longipes* Hendel, 1, 8 veces más largo en *Leptopyrgota albitarsis* n. sp., y 2 veces más largo en *Neopyrgota* (*Allopyrgota*) *hennigi* n. sp. El 5º tergito es poco más corto que el 4º en *Leptopyrgota nigrifrons* n. sp.

Postabdomen. — Consta en el macho del 7º+8º síntergito y del epandrio. El epandrio en los *Campylopyga* es un complejo del 9º tergito y sus procesos, los surestilos, de los restos del 10º segmento y de los apéndices del 11º segmento desaparecido, llama-

dos cercos. Los cercos (cerci) están unidos también en *Pyrgotidae*, pero de una manera que forman un apéndice membranoso bilobado. En contraste, los cercos de las *Trypetidae* nunca forman um apéndice bilobado.

La forma de los surestilos del macho, y del oviscapo de la hembra, casi siempre es muy característica para las especies (ver figuras). Con la estructura postabdominal del macho se ocupó el doctor Hennig (1936, 243-245) detalladamente.

Dimorfismo sexual. — En *Lochmostyliinae* encontramos un dimorfismo sexual regularmente, en caracteres morfológicos importantes, como v.g. en el ancho de la frente (en *Ramuliseta*), en la forma de la arista antenal (♀ ramulosa, ♂ simple), y en el diseño alar. En *Toxurinae* y *Pyrgotinae* el dimorfismo sexual se presenta sólo irregular y escasamente, en caracteres de menor importancia taxonómica (v.g. en la presencia o ausencia de algunas manchitas obscuras de la lámina mesofacial, en varias especies de *Leptopyrgota*).

BIOLOGÍA

Mientras que las demás familias del grupo *Otitiformes* de la serie *Acalyptratae* (*Otitidae* + *Pterocallidae, Platystomidae, Ulidiidae, Richardiidae, Tachniscidae* y *Trypetidae*) contienen sin excepción especies con larvas fitófagas, saprófagas o coprófagas, todas las especies de *Pyrgotidae* con metamórfosis conocida, viven en el estado larval como endoparásitos en el abdomen de los coleópteros adultos de la superfamilia *Scarabaeoidea* (= *Lamellicornia*).

ESPECIE	HUÉSPED	AUTOR
Pyrgota undata Wied	*Lachnosterna* (*Phyllophaga*) spp.	Forbes 1908
Pyrgota undata Wied *Pyrgota valida* Harr.	*Lachnosterna* (*Phyllophaga*) spp.	Davis 1916 y 1919, Wolcott 1922
Adapsilia flaviseta Aldr.	*Rutelidae*	Aldrich 1928
Adapsilia flaviseta Aldr.	*Popillia cupricollis*	Clausen, Jaynes y Gardner 1933
Adapsilia flaviseta Aldr.	*Popillia japonica*	Gardner y Parker 1941
Campylocera hirsuta Aldr.	*Rutelidae*	Aldrich 1928
Campylocera robusta Wulp	*Adoretus compressus* Web.	Goot 1915, De Meijere 1916
Maenomena ensifer Bezzi	*Inoplognathus olivieri* Dalm.	Burrell in Clausen 1940
Adapsilia latipennis Walk.	*Hypopholis sommeri* Burm.	Jepson 1941
Adapsilia latipennis Walk.	*Lachnosterna* (*Phytalus*) *smithi* Arr.	Jepson 1941
Pyrgota sp.	*Schizonycha* sp.	Mautia 1940
Adapsilia sp.	*Lachnosterna* (*Phyllophaga*) spp.	Ritcher 1940

Como se ve claramente de este corto cuadro, conocemos aún demasiado pocos datos biológicos en esta familia, y ninguno de Sudamérica. Como ya Forbes (1908) lo observo, las hembras de *Pyrgota undata* Wiedemann, están esperando sobre el cuerpo de ejemplares adultos de *Lachnosterna,* hasta que el coleóptero abre sus elitros poco antes de volar, y depositan sus huevos (?o larvas?) en su abdomen, perforándolo con el ovipositor. Según todos los autores, las larvas endoparasíticas se desarrollan en el abdomen de los coleópteros adultos de *Scarabaeoidea,* y alli mismo se transforman en puparios. Las moscas adultas emergen más adelante del abdomen de los coleópteros muertos. Eso quiere decir, que fácilmente se puede criar las moscas. El autor solicita la gentil colaboración de todos los coleopterólogos argentinos y sudaméricanos, que tengan la bondad de enviarle ejemplares muertos de coleópteros *Scarabaeoidea* (= *Lamellicornia*) en cualquiera cantidade, encontrados durante sus giras de recolección.

La mayoría de las especies de coleópteros de la superfamilia *Scarabaeoidea* son crepusculares, es decir vuelen al anochecer; por supuesto también la mayoría de las especies de *Pyrgotidae* tienen adultos crepusculares. Sin embargo algunas, como v.g. el coleóptero australiano *Anoplognathus olivieri* Dalm. tanto como su parásito *Maenomenus ensifer* Bezzi tienen hábitos diurnos. Los adultos de las especies crepusculares de las *Pyrgotidae* son a menudo atraidos por la luz artificial.

Hallándose entre las *Scarabaeoidea* muchas especies perjudiciales para varias plantas cultivadas, ya intentaron incluir varias especies de *Pyrgotidae* en la lucha biológica contra esos coleópteros. Así introducieron v.g. *Pyrgota undata* Wiedemann en la isla de Porto Rico contra especies perjudiciales de *Lachnosterna* (Wolcott 1922), *Adapsilia latipennis* Walker en la isla Mauricius contra *Lachnosterna* (*Phytalus*) *smithi,* Arr., (Jepson 1941) y *Adapsilia flaviseta* Aldrich en la U.S.A. contra *Popillia japonica* (Gardner y Parker 1941). Pero los intentos fracassaron porqué de los informes posteriores parece que las especies de *Pyrgotidae* utilizadas no tienen adaptabilidad adequada para la aclimatización.

Souza Lopes (1935) describió por primera vez las larvas jóvenes (1º estado) de una especie de *Lochmostyliinae, (Lochmostylia lopesi* Keiser), sacándolas del abdomen de las hembras. Todos los datos conocidos hasta la fecha de las larvas de *Pyrgotidae* se puede encontrar en el libro excelente del doctor W. Hennig (1952). Desafortunadamente aún no se conoce la biología y morfología de las larvas de ninguna especie de *Toxurinae* y de *Teretrurini.*

PARTE ZOOGEOGRÁFICA

1. REGIONES ZOOGEOGRÁFICAS DE AMÉRICA CENTRAL Y DE SUD: NEOTROPICAL Y ANTÁRTICA

Antes de ocuparse con la distribución de la familia, el autor quiere discutir sobre la zoogeografía de la llamada región "neotropical". Ejecutando un intenso trabajo zoológico en la Argentina, el autor cada vez ha quedado más convencido de que los centros "7º y 8º" del Dr. J. Lane, o los "centros antartándicos" (es decir Sud del Chile y Patagonia), tantas veces citados en sus trabajos, y tantas veces contrapuestos a los "centros 1º-6º de J. Lane", tienen un rango zoogeográfico mucho más alto que un sólo centro o subdivisión ("subregión chilena" según Wallace y Holdhaus 1929) de la región neotropical. Ya en el año 1950 en su catálogo de *Tylidae* y *Neriidae* (Acta Zool. Lilloana 8:311), el autor caracterizó "ambos centros del sur" como sigue: "Tienen en general un aspecto antiguo y, según mi opinión, distincto de los demás centros de la región neotropical". Se puede añadir que la fauna de estos "centros del Sur" parece antigua no solamente porqué incluye algunos fósiles vivos, como v.g. *Protonephrocerus chiloensis* Collin (el otro género de la tribus *Protonephrocerini, Metanephrocerus* Aczél, es fósil en el ambar báltico, oligóceno), sino también porqué es casi tan diezmada como una fauna insular.

Muchas familias, subfamilias, tribus y géneros "verdaderamente neotropicales" o abundantes en los "centros 1º-6º de J. Lane", están totalmente ausentes en el Sud del Chile y Patagonia, o están representadas por una sola (v.g. el género *Tomoplagia* Coquillett, *Trypetidae*), o muy pocas especies invasores, aparentemente no autóctonas.

Así v.g. la subfamilia *Pterocallinae* (de *Otitidae,* Aczél 1953), la familia *Richardiidae* (Aczél 1953), la subfamilia *Taeniapterinae* y el género *Tylos* Meigen de *Tylini,* además la familia *Neriidae* (Aczél 1950, 1953), la subfamilia *Phlebotominae* (de *Psychodidae,* Barretto 1946), la tribus *Sabethiini* de *Culicidae* (J. Lane 1943), las subfamilias *Pytiocerinae, Scioninae, Diachlorinae, Lepiselaginae, Stenotabaninae, Dichelacerinae* y *Bellardiinae* de *Tabanidae* (Kröber 1930, in Dipt. Patag. S. Chile), la subfamilia *Pachygasterinae* de *Stratiomyiidae* (Aubertin 1930, en Dipt. Patag. S. Chile), *Pyrgotini* y *Lochmostyliinae* de *Pyrgotidae,* etc., etc., están completamente ausentes en estos "Centros del Sur". En cambio varios grupos endemicos de dípteros se pueden hallar exclusivamente en esta área sureña, como v.g. el género *Cryogonus* Cresson de *Tylini* (Aczél 1953), la tribus *Protonephrocerini* de *Dorilainae* (Aczél 1952), la tribus *Teretrurini* de *Pyrgotinae,* muchos géneros de *Bombyliidae, Syrphidae,* etc., etc.

Además varios grupos de dípteros están dispersos exclusivamente en el Sud del Chile, inclusive Patagonia, y en la región australiana, como v.g. la pequeña familia *Sciadoceridae* (Schmitz 1929, en Dipt. Patag. S. Chile), la subfamilia *Toxurinae* de *Pyrgotidae,* los géneros *Comptosia* y *Lygira* de *Bombyliidae,* y *Trichophthalma* de *Nemestrinidae* (Edwards 1930, en Dipt. Patag. S. Chile), el género *Microconops* de *Conopidae* (Aczél 1951), etc., etc. El número de los ejemplos debe quedar muy delimitado en el presente trabajo, pero sería muy interesante confeccionar una lista, en la cual se reune todos los datos correspondientes, conocidos hasta la fecha. Porqué se debe hacer notar que la dispersión geográfica de todos los demás categorías sistemáticos del reino animal, demuestra más o menos claramente el mismo aspecto que los dípteros en la llamada región "neotropical".

Consultando el trabajo excelente de Cabrera (1953) sobre la fitogeografía de la Argentina, el autor notó que la dispersión geográfica de las varias categorías del reino vegetal en Sudamérica, expresa muy marcadamente la diferencia entre los "centros sureños" y los "centros verdaderamente neotropicales", tanto, que todos los autores modernos de la fitogeografía coinciden en reconocer en la América del Sur un territorio tropical ("néointertropicale" de Gaussen 1933, "Zentral — und südamerikanisches Florenreich" de Engler y Diels 1936, "Neotropical Kingdom" de Good 1947, "región neotropical" de Cabrera 1953, etc.) y un territorio meridional, relacionado con Nueva Zelandia y Australia ("antarcticoandine" de Gaussen, "Australes (altozeanisches) Florenreich" de Engler y Diels, "Antarctic Kingdom" de Good, y "región austral" de Cabrera).

Considerando, de que todos los animales están vinculados estrechamente con las plantas, porqué se alimentan directa o indirectamente con materiales producidos por plantas verdes, la situación actual en la dispersión es el producto de una evolución conjunta de todos los seres vivientes durante muchos centenares de milliones de años. Solamente por fines prácticos distinguimos la zoogeografía de la fitogeografía, las cuales originalmente no son más que dos caras de la misma biogeografía. Considerando además, de que la fitogeografía siempre expressa con más nitidez los rasgos generales de la dispersión que la zoogeografía, porqué las plantas son mucho menos móviles y se ajustam mucho más intensamente al ambiente que los animales, formando ellas mismas la parte fundamental del ambiente para los animales, *el autor acepta el concepto fitogeográfico, introduciendo en la zoogeografía del continente americano, la región antártica.*

La región antártica. — Región zoogeográfica, la cual ocupa la parte sudoccidental del continente sudaméricano, todo el continente antártico, las islas Malvinas, Georgias del Sur, Kerguelen,

Macquaire, y talvez también Campbell y Auckland. Provisoriamente se puede aceptar los límites establecidos por Cabrera (1953) para la región. Cabrera opina sin embargo (1953, 153) que "evidentemente el dominio subantártico ocupó un área más amplia en América de Sur en épocas geológicas recientes; en efecto algunos géneros típicamente australes llegan hasta el sur del Brasil, o se extienden hacia el norte a lo largo de los Andes". Los límites meridionales de los grupos de dípteros *Phlebotominae* de *Psychodiade* (Barretto 1946, 101, fig. 1) y *Sabethiini* de *Culicidae* (Lane 1943, 427, mapa 9), o v.g. también los de la familia de coleópteros *Hispidae* (Monrós y Viana 1947, Public. n.º 162, Entom., Mus. Argent. Ci. Nat. 143, fig. 3), etc., etc., todas ampliamente distribuidas en la región neotropical, casi exactamente coinciden y talvez marcan un límite septentrional anterior, y el límite de la "subregión chilena" de Holdhaus (1929) marca la mayor extensión de la región. Por supuesto, los elementos típicos de ambas regiónes sudaméricanas se entremezclan en la área amplia la cual se halla entre el límite actual y el anterior de ellas. Talvez más tarde, sobre la base de datos biogeográficos más exactos, sería conveniente de ampliar la extensión de esa región. El autor se inclina a incluir la "provincia patagónica" de Cabrera también en la región antártica.

Existiendo en la biogeografía una región australiana, no parece aconsejable la aplicación del nombre "austral" para nuestra región, si quisieramos evitar equivocaciones. Por eso se ha adoptado el nombre "antártica" como el más exacto para denominar la región.

Las mayores afinidades de la región antártica se establecen con la región australiana, aunque la fauna y flora antárticas demuestran actualmente un parentesco ya lejano, y en la mayoría de los casos borroso, para con la fauna y flora australiana.

Región neotropical s. str. — Se extiende desde la región neártica hasta el límite meridional de *Phlebotominae*, *Sabethiini*, *Hispidae*, etc. Entre este límite y el límite de la región antártica (según Cabrera), existe una amplia zona de transición, y más al norte del límite meridional de las *Phlebotominae*, etc. aún se hallan restos antiguos de una fauna y flora antártica.

Parece tener pocas afinidades con la región antártica.

2. — DISPERSIÓN ZOOGEOGRÁFICA DE LA FAMILIA

Mientras que entre las tribus de la subfamilia *Pyrgotinae*, las *Pyrgotini* están distribuidas en todas las regiones zoogeográficas excepto la antártica, la *Teretrurini* (4 especies) son endémicas de la región antártica. Las *Toxurinae* están limitadas a las regiones *australiana* (15 especies) y antártica (1 especie). La tercera sub-

familia, *Lochmostyliinae* está limitada a las regiones neotropical (4 especies), oriental (1 especie) y etiópica (1 especie).

La preponderante parte de las especies pertenece a las *Pyrgotini*. Hasta la fecha aproximadamente se conoce en el mundo 200 especies, 5 especies (*Toxurinae y Teretrurini*) de la región antártica y 34 especies de la neotropical. Muy probablemente no hemos llegado de conocer aún el tercio de las especies existentes. La mayor cantidad de las especies parece estar distribuida en la región etiópica.

LISTA DE LAS ESPECIES NEOTROPICALES Y ANTARTICAS

Hasta la fecha se conocían 25 especies distribuidas en 13 géneros, de esas regiones; en el presente trabajo están redescriptas 5 especies, descriptas 14 especies y 4 géneros nuevos, elevando el número de las especies a 39, y de los géneros a 17. La especie *Teretrura flaveola* Bigot está señalada por primera vez en la Argentina.

Subfamilia *Toxurinae*:

Género *Descoleia* Aczél, n. gen.

1. *D. teretrura* Aczél, n. sp. ♀ — Argentina: Tucumán.

Subfamilia Pyrgotinae

Tribus *Teretrurini*

Género *Teretrura* Bigot

2. *T. flaveola* Bigot ♀ —Chile; Argentina: Neuquén.
3. *T. shannoni* Malloch ♂ ♀ — Chile.
4. *T. tinctipennis* Malloch ♂ ♀ — Chile; Argentina: Neuquén.

Género *Pyrgotosoma* Malloch

5. *P. flavida* Malloch ♂ ♀ — Argentina: Neuquén; Chile.

Tribus *Pyrgotini*

Género *Pyrgota* Wiedemann

6. *P. ilona* Aczél, n. sp. ♀ — Argentina: Salta.
7. *P. longipes* Hendel ♂ ♀ — Brasil: Rio Grande do Sul, São Paulo, Paraná; Guatemala.
8. *P. lugens* Wulp ♂ — Guatemala.

Género *Stirothrinax* Enderlein

9. *S. cribratus* Enderlein ♀ — México.

Género *Stenopyrgota* Malloch

10. *S. crassitibia* Aczél, n. sp. ♀ — Argentina: Tucumán.
11. *S. mexicana* Malloch ♀ — México: Chihuahua.

Género *Lopadops* Enderlein

12 *L. nigerrima* Enderlein ♀ — Argentina: Tucumán.

Género *Apyrgota* Hendel

13. *A. personata* Lutz & Lima — Brasil.

Género *Leptopyrgota* Hendel

14. *L. albitarsis* Aczél, n. sp. ♂ ♀ — Brasil: São Paulo.
15. *L. amplipennis* Hendel ♀ — Bolivia; (?Costa Rica?).
16. *L. annulipes* Aczél, n. sp. ♀ ♂ — Argentina: Tucumán.

17. *L. apilosa* Aczél, n. sp. ♀ — Argentina: Córdoba.
18. *L. costalimai* Aczél, n. sp. ♀ — Brasil: Rio de Janeiro.
19. *L. fibulata* (Enderlein) ♂ — Brasil: Sta. Catarina.
20. *L. méhelyi* Aczél, n. sp. ♂ ♀ — Argentina: Tucumán, Jujuy.
21. *L. minuta* Hennig ♀ — Argentina: Mendoza, Tucumán.
22. *L. nigrifrons* Aczél, n. sp. ♂ ♀ —Argentina: Tucumán.
23. *L. pulchra* Aczél, n. sp. ♀ — Argentina: Tucumán.
24. *L. sahlbergiana* Frey ♀ — Brasil: Rio de Janeiro.
25. *L. undulata* Becker ♂ — Ecuador.

Género *Neopyrgota* Hendel

Subgénero *Allopyrgota* Aczél, n. subg.

26. *N. appendiculata* Hennig ♂ — Brasil: São Paulo.
27. *N. hennigi* Aczél, n. sp. ♂ — Brasil: São Paulo.
28. *N. major* Hennig ♂ ♀ — Costa Rica.
29. *N. picea* Hennig ♂ ♀ — Costa Rica.

Subgénero *Neopyrgota* Hendel s. str.

30. *N. calcarata* Hendel ♀ — Paraguay; Brasil de Sur.
31. *N. falciterebra* Hennig ♂ ♀ — Brasil de Sur.

Género *Tropidothrinax* Enderlein

32. *T. boliviensis* Enderlein ♀ — Bolivia: Sara.

Género *Idiopyrgota* Aczél, n. gen.

33. *I. setiventris* Aczél, n. sp. ♀ — Brasil: Mato Grosso.

Género *Carrerapyrgota* Aczél, n. gen.

34. *C. miliaria* Aczél, n. sp. ♂ ♀ — Brasil: Mato Grosso; Argentina: Salta, Tucumán.

Subfamilia *Lochmostyliinae*

Género *Tauroscypson* Curran

35. *T. guiana* Curran ♀ — Guiana Británica.
36. *T. andina* Aczél, n. sp. ♀ — Bolivia: Sara; Perú.

Género *Lochmostylia* Hendel

37. *L. borgmeieri* Hendel ♀ — Costa Rica.
38. *L. lopesi* Keiser ♀ — Brasil de Sur.

Género *Furcisetа* n. gen.

39. *F. plaumanni* (Hennig) ♂ ♀ — Brasil: Sta. Catarina.

CLAVE MUNDIAL PARA LAS SUBFAMILIAS Y TRIBUS

1 — Arista en ambos sexos setiformes, microscópicamente pubescente. Antenas entre escapo y pedicelo están geniculadas hacia abajo, hasta péndulas. Foveas antenales y lámina mesofacial normalmente desarrolladas. Cavidad bucal, anteclípeo, palpos maxilares y labelo están simultáneamente presentes. Costa con una interrupción muy corta pero nítida, poco distal de la nervadura th, angosta, hialina y desnuda. Oviscapo relativamente grande y abultado, de una base muy ensanchada, o comprimida (*Neopyrgota* Hendel) es cilíndrico-cónico, hasta deprimido triángular

2 — Ápice de la nervadura subcostal (*sc*) alcanza la costa en forma de una nervadura transversal fi[illegible], formando un ángulo recto con la costa, como en *Trypetidae*. Margen apical del pedi-

celo con una incisión profunda externodorsal, como en las demás familias de *Acalyptratae*. Ocelos presentes, o rara vez, ausentes. Ápice del postpedicelo termina en una punta pequeña dorsoapical, más o menos aguda. — Regiones australianas y antártica ..... *TOXURINAE*

2'— Nervadura *sc* normal, su ápice forma con la costa un ángulo agudo, la alcanza o desaparece poco antes de alcanzarla. Margen apical del pedicelo sin incisión profundo externodorsal (excepto los géneros australianos *Prodalmannia* Bezzi, *Frontalia* Malloch y *Toxopyrgota* Hendel) o con una incisión muy leve y ancha, apenas notable (*Teretrurini*). Ápice del postpedicelo redondeado (excepto en el género africano *Platynostira* Enderlein) ..... *PYRGOTINAE*

3 — Ocelos presentes. Cara ventral del empodio en todo su largo densamente pilosa. Nervadura r_{2+3} sin apéndice. Margen apical del pedicelo con una leve y ancha incisión dorsal. — Endémica en la región antártica ..... *Teretrurini*

3'— Ocelos siempre ausentes. Margen apical del pedicelo sin incisión dorsal Empodio setiforme, desnudo, o en *Leptopyrgota*, solamente su 1/3-2/3 parte basal es pilosa. Nervadura r_{2+3} sin, o con, apéndice. En todas las regiones, excepto la antártica ..... *Pyrgotini*

1' — Árista de la hembra ramulosa (se ramifica varias veces en forma de abanico) o por lo menos bifurcada, y termina en pelos finos. Antenas en ambos sexos reducidas, pequeñas y cortas, rectas y no geniculadas. Foveas antenales, o toda la lámina mesofacial considerablemente agrandadas, semitransparentes y nítidamente bordeadas. Cavidad bucal y anteclípeo siempre, labelo a veces, están ausentes; palpos maxilares muy reducidos. Costa sin interrupción en el sitio mencionado. Ocelos ausentes. Cara ventral del empodio en todo su largo es pilosa. Oviscapo relativamente pequeño, deprimido, con los márgenes laterales levemente enrollados hacia arriba. — Regiones neotropical, oriental y etiópica ..... *LOCHMOSTYLIINAE*

(Continuará no próximo volume a parte especial dêste trabalho)

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UNA NUEVA ESPECIE DEL GENERO *SURUTU* MARTINEZ
(Col. Scarabaeoidea, Dynastidae)

POR

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Y

ANTONIO MARTÍNEZ (**)

Entre el material de la colección del Dr. Carlos Alberto Campos Seabra de Rio de Janeiro, hallamos un interesante Dynastidae de la tribu Cyclocephalini, perteneciente al género *Surutu* y, que una vez estudiada resultó ser una nueva especie, la segunda del mismo, que a continuación describimos.

Surutu seabrai, sp. n.

(Figs. 1-16)

S. dytiscoides Martínez cercano; difiere en la forma de la cabeza, mas alargado oval, puntuación de la misma, del pronoto y élitros; abdomen con los esternitos mas fuerte e irregularmente punteados; pigidio con el borde distal en arco mas anguloso, la escultura y ornamentación del mismo, etc. ♀ con los élitros dilatados en callo saliente y aguzado en el cuarto distal sobre el borde lateral; 6º esternito con el borde caudal en arco mas notable; forma de los dientes de las tibias anteriores, etc.

Color general castaño oscuro, con la pelosidad que cubre las diferentes regiones del cuerpo de color pardo rojizo o dorado mas

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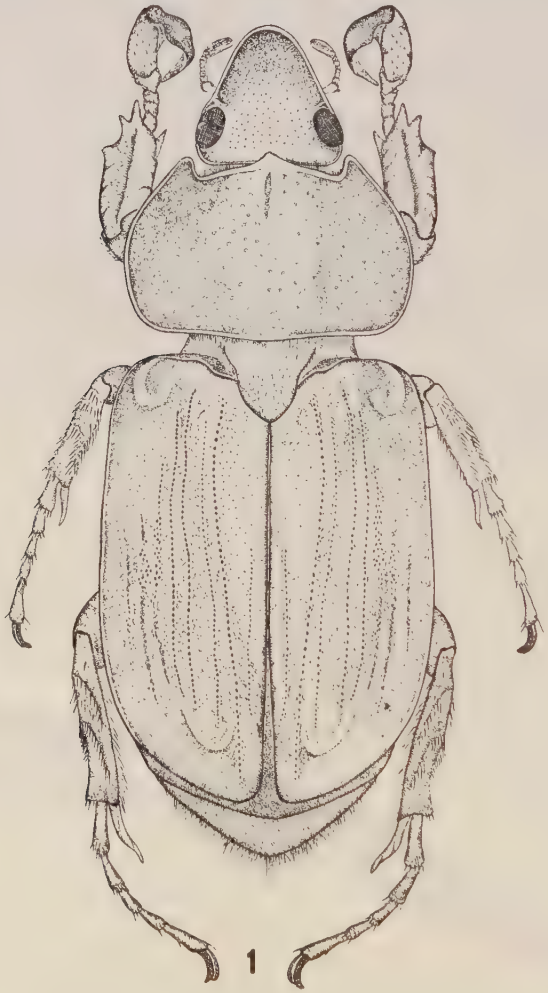
o menos intenso. Cabeza alargada, apicalmente un poco levantada, el borde clipeal marginado finamente, los cantos oculares cortos; superficie punteada totalmente, los puntos simples. Región ventral con el menton impreso medialmente. Pronoto muy



Surutu seabrai sp. n. — Fig. 1 - ♂ Norma dorsal.

similar al de *S. dytiscoides* en conformación; con puntos microscópicos en toda la superficie, los que son mas aglomerados lateralmente. Prosterno con el proceso medial longitudinal cubierto de pelosidad cerdiforme y la escultura no definida en arrugas como

en la especie genotípica; la mitad posterior con el proceso postcoxal mas robusto y redondeado. Proepisternos con una pequeña área de puntos peliferos sobre el ángulo anterior. Mesonoto con el escudete muy dispersamente punteado; élitros mas fuertemente

2

Surutu seabrai sp. n. — Fig. 2 - ♀ Norma dorsal.

esculturados, la puntuación es ocelada y simple intercalada, el "callo" distal mas conspicuo. Mesosterno, mesoepisternos y metaepisternos cubiertos con pelos. Metasterno en las regiones latera-

les y en los dos tercios anteriores también con pelos notables, pero en la región de la placa y sobre las cavidades cotiloideas con cerditas muy pequeñas y solo notables según la incidencia de la luz, con surco longitudinal medial. Patas anteriores con las tibias tridentadas (dos dientes laterales y uno disto lateral), los dientes pequeños; tarsos distintos para los sexos. Patas medias con las tibias lateralmente con dos carenas transversales, el ápice distal irregularmente truncado, los espolones muy disímiles; tarsos, incluyendo uñas, mas largos que la tibia, decrecientes del 1º al 4º, el 5º el mas largo de todos y con dos uñas grandes, arqueadas, aguzadas y desiguales. Patas posteriores con las tibias mas largas que las precedentes y con escultura muy semejante a la del par medio, los espolones presentes y notables; los tarsos de forma similar a los del par medio. Abdomen con los esternitos fuerte e irregularmente esculturados lateralmente; el 6º esternito deprimido con relación a los precedentes. Pigidio punteado muy irregularmente ♀, con arrugas ♂, sobre el borde libre y apicalmente con cerdas mas o menos largas.

DESCRIPCION

♂: Cabeza — Alargada-oval, el borde clipeal finamente marginado y distalmente algo levantado. Superficie totalmente punteada, los puntos microscópicos y algo irregulares, simples y ocelados entremezclados, bastante juntos y mas pequeños y aglomerados sobre el borde clipeal; con rastros muy poco evidentes de sutura clípeo-frontal, solo notable lateralmente; cantos oculares muy cortos, no alcanzando la mitad del ojo; ojos laterales, semiesferoidales.

Región ventral con la casi totalidad de la superficie ocupada por las piezas bucales, sobre el borde clipeal la escultura, vista con aumento, se presenta con algunos puntos y, en las proximidades y por delante de la inserción antenal hay una estrecha zona con micropuntos también peliferos. Labro (Fig. n.º 4) irregularmente semicircular, medianamente esclerosado, en la región anterior con un proceso alargado que es truncado apicalmente; la superficie con cerdas de distintos tipos, unas finas, sedosas y largas y otras cortas y gruesas en forma de púa, habiendo también otras como espinas microscópicas intercaladas. Labio (Fig. n.º 7) con el menton subcordiforme, el borde anterior profundamente escotado, los bordes laterales en arco algo sinuoso, el borde posterior casi recto, la superficie ventral algo irregular, punteada, muy dispersamente en el medio y mas densamente sobre los lados, los puntos peliferos, los pelos largos; palpifer subcuandragular, cada uno con el borde interno distal algo saliente en ángulo poco notable; palpos de tres artículos: 1º algo arqueado; 2º el mayor y

algo alargado oval y, el 3º ovoidal con el ápice en placa membranosa; tanto el palpifer en el borde anterior, como el 1º y 2º artículos de los palpos con pelos conspicuos y finos. Submenton (Fig. n.º 7) muy corto y ancho, la superficie deprimida en surco transversal poco profundo y con puntos microscópicos pelíferos, siendo los pelos muy finos. Gula (Fig. n.º 7) poco mas larga que ancha, convexa; superficie anteriormente con una hilera transversal y postero-lateral con una zona a cada lado de puntos pelíferos, siendo los puntos microscópicos y los pelos finos. Maxilas (Figs. n.º 5 y 6) con la gálea y lacinia (Fig. n.º 5) soldadas, la primera alargada triangular y con cinco dientes sobre el borde medial, la gálea pequeña y lobuliforme, saliente ántero lateralmente en diente grueso; palpifer lateral, alargado; palpos cuadriarticulados: 1º muy corto, el mas pequeño de todos, algo arqueado; 2º alargado subtrapecial; 3º irregularmente securiforme y mas corto que el precedente; 4º alargado fusiforme, el mas largo de todos, pero poco mas corto que la suma de los 2º y 3º, el ápice con membrana. Antenas (Fig. n.º 3) de diez artículos: 1º claviforme, el mas largo de todos; 2º también claviforme, pero muy corto; 3º y 4º subcuadrangulares y del mismo largo aproximadamente; 5º trapezoidal; 6º y 7º campanuliforme irregulares; 8º a 10º formando la maza, ensanchados, lentiformes, decrecientes hacia éste último que es convexo en la cara distal.

Tórax — Pronoto mas ancho que largo, regular y poco convexo. Angulos proximales salientes, aguzados y con el ápice romo; ángulos posteriores muy obtusos y redondeados. Bordes marginados, el posterior excepto en una pequeña zona preescutelar y el anterior, a veces, medialmente. Superficie punteada; los puntos lateralmente pequeños, ocelados y bastante aglomerados, hacia la región discal y medial los puntos se tornan menos conspicuos, simples y ralos, siendo en la parte central del disco y casi sobre el borde anterior casi inaparentes, aún con aumento.

Prosterno en la mitad anterior con el borde medialmente saliente en ángulo y, por detrás con la carena longitudinal ancha; la superficie con algunas arrugas transversales en las regiones laterales y, con cerdas, que son mas aglomeradas sobre la carena, el borde anterior está marginado con cerdas muy tupidas que forman fleco; la sutura que lo separa de los proepisternos algo oblicua, corta. Mitad posterior saliente en tubérculo fungiforme algo dirigido hacia adelante, sobre la región posterior de éste con una franja de pelos largos y, en las proximidades del borde posterior, el que es marginado de cerdas, con algunas rugosidades transversales y mas o menos notables.

Proepisternos anteriormente y sobre los ángulos con puntos pelíferos, los pelos cortos, cerdiformes; sobre la región posterior

Surutu seabrai sp. n. — Fig. 3 - Antena; Fig. 4 - Labro, norma ventral; Fig. 5 - Gálea y lacinia de la maxila derecha, norma ventral; Fig. 6 - Maxila izquierda, norma dorsal; Fig. 7 - Labio; prementon y gula, norma ventral. Las figuras 3 a 7 en la misma escala.

y medial deprimidos y, en las cercanías del borde de las cavidades cotiloideas con puntos pelíferos, los pelos largos.

Mesonoto con el escudete en forma de lengüeta, la superficie con algunos micropuntos; en la región cubierta por el pronoto con puntos mas conspicuos y aglomerados y con cerditas lateralmente. Elitros con microcerdas que son mas aparentes lateral y caudalmente, notablemente mas largos que anchos, convexos; las estrías muy poco aparentes y solo notándose una línea sutural en la mitad distal y cuatro mas antes del tubérculo "humeral", que son algo irregulares, punteadas y, solamente la 2ª alcanzando la región caudal del "callo" distal, el que es muy poco notable, posterior y lateralmente al tubérculo "humeral" que es poco insinuado, el élitro algo deprimido y muy irregular y aglomeradamente punteado, entre las líneas discales los espacios (correspondientes a las interestrías) son punteados, los puntos irregulares, finos y mas gruesos intercalados y, notándose en el 1er, interespacio, por detrás del escudete, una corta zona impunteada que se angosta y pierde hacia atrás; epipleuras muy finas y angostas, formando lateralmente un margen algo elevado.

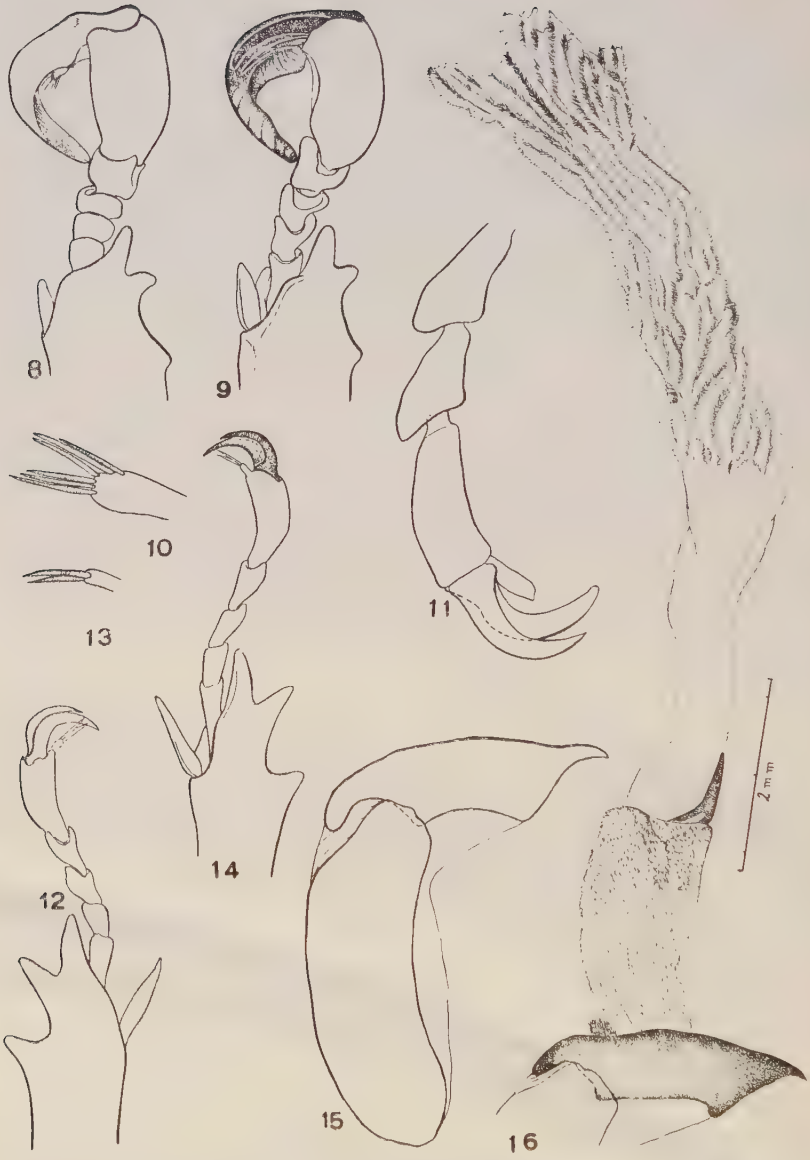
Mesosterno deprimido por delante de las coxas medias, totalmente micropunteado, siendo los puntos poco mas ralos por delante de la depresión y, todos con cerditas cortas y microscópicas.

Mesoepisternos con escultura coriácea entre la que hay puntos rasos y ocelados que tienen pelos moderadamente largos.

Metasterno en la placa con surco longitudinal muy fino y poco notable y, en ésta y una zona caudal que se angosta triangularmente sobre el borde posterior de las regiones laterales con puntos ralos y poco conspicuos que llevan una cerdita corta y microscópica; el resto de las regiones laterales con puntación bastante notable, muy aglomerada y pelífera, siendo los pelos cortos y bastante tupidos.

Metaepisternos con escultura coriácea grosera e irregular, entre la que se intercalan cerditas cortas y finas.

Patas anteriores con los fémures en la cara ventral y en la mitad anterior con puntos simples, finos y que tienen microcerditas solo visibles según la incidencia de la luz, en la mitad caudal solamente con puntos sobre la región posterior, siendo éstos bastante impresos y con cerditas notables, los bordes anterior y posterior también marginados con cerditas; tibias cortas y gruesas salvo sobre el ápice proximal que es grácil, lateralmente en el tercio distal con los dientes poco conspicuos y existiendo un tercero disto lateral y, siendo el primero romo y los dos últimos aguzados, el ápice distal irregularmente truncado, la cara ventral con una depresión apical oblicua y estrecha donde se insertan los tarsos e internamente el espolón, el que es achatado, recto, poco mas largo que el 1er artículo tarsal y con el ápice romo; tarsos cortos,



Surutu seabrai sp. n. — Fig. 8 - Apice distal de la tibia anterior y tarsos (♂), norma dorsal; Fig. 9 - Apice distal de la tibia anterior y tarsos (♂), norma ventral; Fig. 10 - Oniquio de los tarsos anteriores ♂; Fig. 11 - Uñas de los tarsos medios ♂; Fig. 12 - Apice distal de la tibia anterior y tarsos (♀), norma dorsal); Fig. 13 - Oniquio de los tarsos anteriores ♀; Fig. 14 - Apice distal de la tibia anterior y tarsos (♀), norma ventral; Fig. 15 - Falobase y parámeros ♂, norma lateral; Fig. 16 - Parámeros y vesica ♂.

Las figuras 8, 9, 10, 12, 13 y 14 están efectuadas con Lupa binocular "Zeiss", oc. 5 x; obj. 2 x.

Las figuras 11, 15 y 16 en la misma escala.

el 1º alargado, ventralmente surcado transversalmente y algo ensachado en el ápice distal, 2º y 3º muy irregularmente cilindroides y cortos, 4º semilunar corto y muy irregular, 5º anormalmente engrosado, alargado y arqueado, su largo como la suma aproximada de los precedentes reunidos, las uñas enormes, sobretodo la dorsal que es comprimida, algo laminiforme y muy arqueada y, casi tocando su ápice la cara medial del 4º artículo tarsal, la uña ventral es mucho menor, arqueada, espiniforme y aguzada, el oniquio (Fig. 10) digitiforme y el ápice con seis cerdas gruesas. Patas medias con los fémures en la cara ventral punteados rala y microscópicamente, existiendo en la mitad posterior y lateralmente un surco transversal con puntos pelíferos muy juntos, también hay puntos pelíferos con cerdas sobre los bordes anterior y posterior; tibias cortas, moderadamente engrosadas, de corte irregularmente semioval, lateralmente con dos carenas transversales semilunares que están marginadas con cerditas cortas y robustas, de las que también hay algunas sobre el ápice distal, el que es casi rectamente truncado, espolones con el dorsal largo y espiniforme, del largo, mas o menos, del 1er. artículo tarsal, el espolón ventral muy pequeño, robusto, prismático y con el ápice romo; tarsos del 1º al 4º en tamaño decreciente, el 5º el mas largo de todos, algo arqueado, el ápice con dos uñas (Fig. 11) disimiles, arqueadas y aguzadas, siendo menor la dorsal, oniquio laminiforme alargado, con dos setas cortas y robustas en el ápice. Patas posteriores con los fémures en la cara ventral poco mas fuertemente punteados que en los del par precedente, pero la puntuación que lleva cerdas es mucho menos impresa y conspicua y las cerdas mas ralas y cortas; tibias mas largas que las precedentes, de conformación semejante, la cara lateral con escultura similar a la de aquellas, el espolón ventral el menor y semejante en forma al espolón ventral medio, pero el espolón dorsal, que tiene también el largo aproximado del 1er. artículo tarsal, es comprimido, distalmente truncado oblicuamente y con el ápice inferior aguzado; tarsos poco mas largos que la tibia respectiva, pero de conformación y ornamentación semejante a los del par medio.

Abdomen — Esternitos punteados muy rala y poco conspicuamente en el medio, mas aglomerada y fuerte lateralmente, los puntos irregulares y con cerditas cortas, que son mas abundantes y largas sobre los bordes laterales; el 6º esternito el mas corto de todos, deprimido y acortado medialmente, sobre el borde caudal marginado con cerditas.

Pigidio muy ancho y corto, separado del propigidio por un surco notable; el borde libre en arco, marginado en la región distal con cerditas mas largas en la parte medial. Superficie rugoso-punteada muy aglomerada e irregularmente, con cortas cerditas.

Aparato genital (Figs. 15 y 16) visto lateralmente con el falobase (Fig. 15) semitubular, en la base ensanchado y el borde distal arqueado; los parámeros (Fig. 16) simétricos, alargados, con aspecto que recuerda a un trapezoide y con los bordes algo sinuosos y el ápice distal romo. Vesica (Fig. 16) alargada, membranosa, en la mitad distal poco mas esclerosada y teniendo en la superficie cerditas muy finas y microscópicas.

♀. — Elitros en el cuarto distal con proceso triangular saliente lateralmente, como en algunas *Cyclocephala, Ancognatha* y *Pseudoancognatha,* el ápice aguzado. Patas anteriores con las tibias mas aplanadas y los dientes del borde lateral y disto lateral mas conspicuos y aguzados, el espolón espiniforme alargado y agudo; tarsos (Figs. 12, 13 y 14) alargados, normales, el 1º largo, sin la impresión mediana transversal en la cara ventral, del 2º al 4º subiguales, el 5º alargado y semejante a los de las demás patas, difiriendo únicamente en las uñas, que si bien son desiguales, en éste caso la dorsal es la mayor. 6º esternito con el borde posterior en arco regular y bien largo medialmente. Pigidio poco mas dispersamente punteado, no rugoso y sin cerdas aparentes, excepto sobre el borde distal donde son muy largas y juntas.

Largo: 42-40 mm.; ancho del pronoto: 17-16 mm.; ancho elitral a la altura del cuarto distal (♂: 22-20 mm., ♀: 23-21 mm.) aproximadamente.

Ejemplares examinados y procedencia: 2 ♂♂ y 2 ♀♀ todos del Brasil. ♂ Holotipo, ♀ Alotipo y 1 ♂ Paratipo del Território de Guaporé, Porto Velho, Cachoeira Samuel VIII-1944 (A. Parko coll.) y 1 ♀ Paratipo del Estado do Pará, Obidos XII-1952 (P. A. Telles coll.). Holotipo ♂ y Alotipo ♀ en la colección Martínez; Paratipo ♂ y Paratipo ♀ en la colección del Dr. Carlos Alberto Campos Seabra de Rio de Janeiro, quién nos facilitó el material para su estudio y, a quién dedicamos, con sumo placer ésta tan interesante especie, agradeciéndole todas las atenciones para con nosotros.

Como ya lo indicamos en la Diagnosis, ésta especie, la segunda del género, se separa de *S. dytiscoides* Martínez por la distinta forma y escultura de la cabeza, pronoto, élitros y, principalmente éstos últimos en la ♀; los parámeros de los ♂♂ son también distintos en ambas especies.

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NOTA SÔBRE A LARVA E PUPA DE *CULICOIDES INSIGNIS* LUTZ, 1913 (*DIPTERA, CERATOPOGONIDAE*). (*)

POR

O. P. Forattini, E. X. Rabello e D. Pattoli

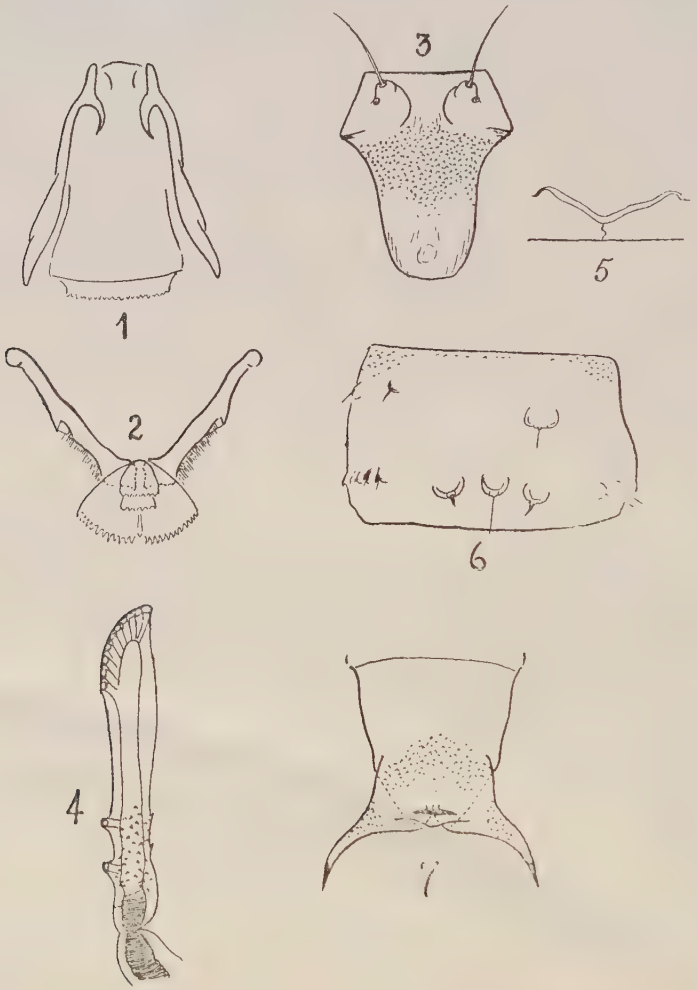
Em meiados do corrente ano (1955), iniciamos estudos destinados a verificar a biologia, em condições naturais, de espécies de *Culicoides* que ocorrem no nosso meio. Como primeiro resultado dessas observações, conseguimos as formas imaturas de *C. insignis* Lutz, em seus criadouros naturais. Aproveitamos o ensejo para descreve-las, nesta pequena nota, adotando para isso, a terminologia usada por Carter, Ingram e Macfie (1920), Lawson (1951) e Kettle e Lawson (1952).

LARVA DE 4.º ESTÁDIO

Capsula cefálica: comprimento 232 micra, largura 196 micra, H. R. — 1,19. Côr marron amarelada, bem esclerotizada, sendo que as mandíbulas, o anel oral e a moldura post-occipital, o são mais do que o restante. Quetotaxia normal, cerda "s" bem desenvolvida e evidente. Esqueleto faringeano evidente, aparecendo em posição transversa na metade anterior da cabeça. Epifaringe (Fig. 2) com pentes dorsais, largos e triangulares, aparentemente fundidos na linha média, cada um com cerca de 10 a 12 dentes curvos e nítidos, na borda posterior. Escleritos ventrais em número de dois, triangulares, com 6 a 7 dentes na borda posterior. Bloco central regularmente esclerotizado. Braços laterais com finas dentições na metade basal. Hipofaringe (Fig 1) com sulco pouco esclerotizado. Margem posterior com dentes finos. Tórax com pigmentação pouco evidente nos exemplares examinados. Cerdas "g" presentes e normais, bem assim como as áreas sensoriais correspondentes.

(*) Trabalho do Departamento de Parasitologia da Faculdade de Higiene e Saúde Pública da Universidade de São Paulo, Brasil (Diretor: Prof. Paulo C. de A. Antunes).

Pupa. — Comprimento, ao redor de 2,5 mm.. Geralmente de côr escura, mais acentuada no céfalo-tórax, principalmente na região dorsal do tórax. O abdomen é mais pálido, com duas man-



Culicoides insignis Lutz, 1913 — Larva: 1 - Hipofaringe; 2 - Epifaringe. Pupa: 3 - Opérculo; 4 - Trompa respiratória; 5 - Terminações do metatórax; 6 - Quarto segmento abdominal; 7 - Segmento anal.

chas pigmentadas dorsais, circulares e simétricas, bem visíveis nos segmentos I a VII. Além dessas manchas, pode-se notar nos segmentos II a IV, duas outras menos evidentes, também circulares e

simétricas, e situadas em posição mais lateral e anterior do que as acima mencionadas. Mancha pigmentada vestigial, impar e de situação central, observada nos segmentos I a III. Operculo escuro (Fig. 3) com numerosos pequenos espículos na sua região mediana. Tubérculos A.M. com uma cerda definida, A.D., D.L., V.L. e V.M. com duas. Os tubérculos A.M. apresentam área sensorial, lateralmente situada na base. Trompa respiratória (Fig. 4) alongada, de côr geral escura, um pouco mais clara no seu terço basal. Na sua extremidade distal notam-se 9 ou 10 papilas, e logo abaixo da linha média, observam-se outras duas, situadas a curta distância uma da outra, cada uma sôbre um tubérculo evidente. Espiculosidade constituida de pequenos elementos nas faces lateral e mediana, elementos êsses que se tornam pouco mais evidentes na margem anterior. Metatórax terminando com extremidades que se confinam por meio de uma linha curta e ligeiramente sinuosa (Fig. 5). Quarto segmento abdominal (Fig. 6) com espiculosidade escassa, constituida de pequenos elementos e limitada aos ângulos anteriores, dorsal e ventral. L.P.M. grandes, anelados, os laterais com cerdas curtas espiniformes e o central com cerda mais longa e delgada. Outros elementos, normais. Segmento anal (Fig. 7) ligeiramente alongado, com apendices desenvolvidos e terminando em ponta aguda e escura. Espiculosidade constituida de pequenos elementos distribuidos principalmente na região média e na base dos apendices.

Material examinado — 4 exúvias larvais, 3 larvas inteiras de 4.º estádio, 9 exúvias pupais, procedentes de São Vicente, Estado de São Paulo, Brasil (VIII e IX-1955 O. P. Forattini e E. X. Rabello col.).

Considerações gerais — Lutz (1913), na descrição original desta espécie, faz ligeira referência a formas imaturas, como se segue: "As ninfas são maiores que as ninfas das outras espécies; as pontas terminais são dirijidas para traz e têm a extremidade preta. A região do clípeo com espinhos finos e curtos". Nada mais pudemos encontrar, nas nossas pesquisas bibliográficas, que se referisse ao assunto. Assim é que, dispondo do material acima mencionado, resolvemos descrever tais formas imaturas ressaltando os caracteres morfológicos de importância taxonômica, utilizados por Kettle e Lawson (1952).

A colheita do material foi levada a efeito em região de mangue. Conseguimos evidenciar três tipos de criadouros: vala de rua com água parada, pequena poça de água, e buraco feito por crustáceos *Oedipleura cordata*. O tempo pupal variou de 4 a 6 dias, nas condições do laboratório.

SUMMARY

The authors describe the fourth instar larva and the pupa of *Culicoides insignis* Lutz, 1913. Breeding places are situated in the marshes of São Vicente, E. S. Paulo, Brazil.

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NOTAS SÔBRE O GÊNERO *STERNECHUS* SCHOENHERR (Col. Curculionidae)

POR

DARIO MENDES

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INTRODUÇÃO

Ocupando-me, no momento, da revisão dos Curculiônidas da tribo *Sternechini,* ofereceu-se-me a oportunidade de fazer, sôbre algumas espécies do gênero *Sternechus* Schoenherr, pequenos reparos que vieram a constituir o assunto destas notas. Deixo aqui consignados os meus agradecimentos ao Prof. Ângelo M. da Costa Lima, que, gentilmente, me pôs à disposição os originais manuscritos relativos ao tomo 10 de sua obra "Insetos do Brasil", na parte em que se trata das espécies de *Sternechus.*

Sternechus sahlbergi (Boheman)

Tylomus sahlbergi Boheman in Schoenherr, 1836, Gen. Spec. Curc., 3(1) :477.
Sternechus sahlbergi Boheman in Schoenherr, 1843, Id., 7 (2) :353.
Sternechus candidus Guérin, 1843 aut 1844, Icon. Règne Anim. Ins., p. 146.
Sternechus excellens Heyne & Taschenberg, 1908, Exot. Käf., p. 229, pl. 31, fig. 1.

Ao proceder à determinação das formas de Sternechus Schoenherr que fazem parte da coleção entomológica do Instituto de Ecologia e Experimentação Agrícolas e da coleção Campos Seabra, tive o ensejo de examinar sete exemplares de uma mesma espécie. A excelente e minuciosa descrição de Boheman (1836, p. 477), para a espécie *Tylomus* (= *Sternechus*) *sahlbergi,* muito característica, tìpicamente colorida, não deixa a menor dúvida de que os espécimes que tive em mãos pertencem a esta espécie. Por outro lado, a descrição de Guérin, para *Sternechus candidus* (1843 ou 1844, p. 146), apesar de curta, é bastante elucidativa, e os referidos exemplares da espécie *Sternechus sahlbergi* (Boheman) correspondem a essa descrição perfeitamente, em seus mínimos deta-

lhes. Nestas condições, não vejo motivo por que continuar a considerar *Sternechus candidus* e *Sternechus sahlbergi* como espécies distintas. Ainda mais, uma terceira espécie aceita é a de Heyne & Taschenberg (1908, p. 229, pl. 31, fig. 1) que, apesar de não ter sido descrita pelos autores na página que lhe deram o nome de *Sternechus excellens,* é, por êles, muito bem figurada em côres. O exame cuidadoso do excelente desenho de *Sternechus excellens* me permitiu considerar, ainda, *Sternechus excellens* como sinônimo de *Sternechus sahlbergi.* Portanto, *Sternechus excellens* Heyne & Taschenberg, 1908, e *Sternechus candidus* Guérin, 1843 ou 1844, são sinônimos de *Sternechus sahlbergi* (Boheman, 1863).

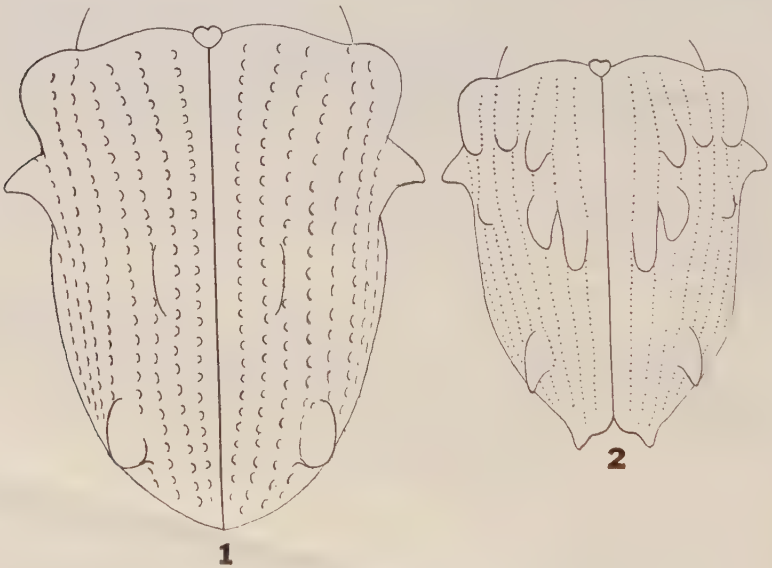

Fig. 1 — *Sternechus tuberculatus* Boheman, 1836.
Fig. 2 — *Sternechus uncipennis* (Germar, 1824)

A espécie *Sternechus candidus,* tida como do ano de 1829 nos Catálogos de Junk e de Blackwelder (p. 96 e p. 823), não pode ter sido descrita nessa data, se atentarmos ao aviso de Guérin, à página 1 de sua obra, que foi dada à publicidade de 1829 a 1844, como se lê no respectivo frontispício. Transcrevemos o seguinte trecho do referido aviso: "Ainsi, par exemple, on pourra voir que toutes les descriptions d'insectes insérées depuis la page 116 sont postérieures à 1842, puisque je cite, au commencement de cette page, l'année 1842 de la Revue Zoologique par la Société Cuvierienne". De sua leitura se deduz que os insetos descritos a partir da página 116 são posteriores a 1842. Como a publicação da última parte da obra foi em 1844, as espécies de insetos descritas da página 116

em diante só o poderiam ter sido em 1843 ou em 1844. Outra prova de que *Sternechus candidus* não poderia ser de 1829 é o fato de Guérin, à página 146, em que descreve a espécie, referir-se ao gênero *Eramphus,* como tendo sido estabelecido em 1838, na Revue Zoologique dêsse ano. E Guérin não poderia referir-se, em 1829, a um trabalho que saiu a lume em 1838. Logo, a data em que a espécie foi descrita será 1843 ou 1844.

II

Sternechus tuberculatus Boheman, 1836, e *Sternechus uncipennis* (Germar, 1824).

Determinei, entre o material que tive em mãos, 4 exemplares da espécie *Sternechus tuberculatus* Boheman, 1836. Ainda a excelente diagnose de Boheman (1836, p. 474) me permitiu a sua identificação. Dos espécimes examinados, três possuiam o rótulo autógrafo de Bondar que, baseado em material determinado por Marshall (1930, pp. 36-39), os identificou como *Sternechus uncipennis.* Figurou, em seu trabalho, a espécie (fig. 9 de Bondar) e a atribuiu a Boheman (p. 36), quando, na realida de, é de Germar, que a descreveu no gênero *Liparus* (1824, p. 310). Como também determinei exemplares de *Sternechus* da espécie *S. uncipennis,* não pude concordar com a identificação de Bondar. A espécie tida por Bondar como *S. uncipennis* (fig. 9 de seu trabalho), nada mais é que *Sternechus tuberculatus* Boheman, 1836. Êste fato assume interêsse maior se atentarmos que a espécie em aprêço constitui conhecida praga das vagens de *Canavalia* e vem sendo, erradamente, considerada como *S. uncipennis.* Um dos exemplares de *Sternechus tuberculatus* que tive em mãos é procedente do Amazonas (os três espécimes enviados por Bondar são da Bahia) e difere ligeiramente dos demais. Mas isto não é razão para que seja considerado de espécie diferente, se admitirmos, com Champion (1902, p. 118) a variabilidade da espécie, mormente tratando-se de exemplar de região bem distinta.

Tive em mãos 4 exemplares de *S. uncipennis.* Apenas um dêles estava determinado, trazia o rótulo autógrafo de Bondar que, comparando-o com material estudado por Marshall, o identificou como *Sternechus hamatus* Boheman, 1863, forma que já é, no momento, considerada sinônima de *S. uncipennis.*

Para que não haja mais dúvida no reconhecimento das duas formas em questão, resolvi dar desenhos dos élitros de ambas, vistos pela face dorsal (figs. 1 e 2).

Como se nota nas figuras, *Sternechus tuberculatus* se distingue muito fàcilmente de *Sternechus uncipennis* pelos caracteres

que enumero a seguir, ao confrontar os élitros de ambas as formas:

Sternechus uncipennis	*Sternechus tuberculatus*
O 2.º inter-espaço se prolonga, perto do meio, em tubérculo.	O 2.º inter-espaço é normal.
O 3.º inter-espaço possui 2 tubérculos alongados na metade anterior e não é mais elevado que os demais inter-espaços.	O 3.º inter-espaço não possui tubérculos e é mais elevado que os demais.
O 5.º inter-espaço é provido de pequeno tubérculo perto da base do élitro e de forte dente pontiagudo no declive posterior (donde o nome *uncipennis*).	O 5.º inter-espaço não possui tubérculo perto da base e, no declive posterior, há apenas baixo tubérculo arredondado.
Os ângulos posteriores dos élitros são pontiagudos e divergentes.	Os ângulos posteriores dos élitros são conjuntamente arredondados.

III

Sternechus guerini Boheman, 1843

Sternechus guerini Boheman in Schoenherr, 1843, Genera et Species Curculionidum, 7 (2) :353.
Sternechus costalis Heller in J. Guérin, 1953, Coleópteros do Brasil, p. 196, pl. 24, fig. 290.

Esta espécie, de que determinei cinco exemplares, dois do Instituto de Ecologia e Experimentação Agrícolas, e três da coleção Campos Seabra, se acha figurada na obra de J. Guérin seguida de curta descrição (1953, p. 196, pl. 24 fig. 290) com o nome de *Sternechus costalis* Heller, nome êste que me é desconhecido, não figurando nos catálogos de Junk e de Blackwelder. Suponho que se trate de *nomen nudum,* mas, de qualquer forma, *Sternechus costalis* é sinônimo de *Sternechus guerini* Boheman, 1843.

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ABSTRACT

NOTES ON THE GENUS *STERNECHUS* SCHOENHERR (*COL. CURCULIONIDAE*)

The author, proceeding to the revision of the Curculionids belonging to the tribe *Sternechini*, publishes in this paper a previous note about some of his conclusions refering to the species of *Sternechus* Schoenherr. He considers *Sternechus excellens* Heyne & Taschenberg, 1908, and *Sternechus candidus* Guérin, 1843 or 1844, as synonymous with *Sternechus sahlbergi* (Boheman, 1836), and *Sternechus costalis* Heller (in J. Guérin, 1953) as a synonym of *Sternechus guerini* Boheman, 1843. He also makes some comments about the species *Sternechus uncipennis* (Germar, 1824) and *Sternechus tuberculatus* Boheman, 1836, considering the species figured by Bondar (1930) under the name *Sternechus uncipennis* as being actually *Sternechus tuberculatus*.

Rev. Brasil. Ent. 4: 205-208 - 5-III-1956 - São Paulo

A NEW NEOTROPICAL *EDWARDSOPS*
(Diptera, Culicidae)

BY

J. LANE (*) AND R. L. HEREDIA (**)

Through the kindness of Prof. Dr. Lauro Travassos and Dr. S. J. Oliveira, we received a small collection of *Chaoborinae* collected in the State of Mato Grosso, BRAZIL and El Paylon, BOLIVIA. Such material proved very interesting as we were able to find additional specimens of both *E. magnificus* and *E. unicolor* from the type locality and also were able to extend the zoogeographic distribution of the first named species. In the material there were specimens of great interest for we not only found a new species which is here described but also identified *E. brevisector* a species known up to the present by the single type specimen.

Below we give the description of the new species and data on the specimens studied. We have also taken this opportunity to include a key for the species in this region as there was an omission in our key (Lane, 1953) and as we believe that the characters now used are inductive to a better identification.

KEY FOR NEOTROPICAL *EDWARDSOPS* (*)

1 — Costal vein covered chiefly by yellow scales and yellow ..... 2.
— Costal vein covered chiefly by brown scales and brown ..... 4.

2 — Mesonotal marks brown, the three marks fused 3.
— Mesonotal marks yellowish, the marks separated *unicolor* (Lane, 1942)

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(*) In the key prepared by the senior author (1953) there was an omission in the first dichotomy as the mesonotal marks were not mentioned.

3 — Stem of 2nd. vein without spots ..... *magnificus* (Lane, 1942)
— Stem of 2nd. vein with a mesial dark mark .... *boliviensis*, n. sp.

4 — Mesonotal marks separated and distinct ..... *stonei* (Lane, 1942)
— Mesonotal marks fused ..... *brevisector* (Edwards, 1930)

Edwardsops brevisector (Edwards, 1930)

Chaoborus Edwards, 1930, An. & Mag. N. H., 6 (1): 34: 533.
Edwardsops Lane, 1953, Neotrop. Cul., 1: 108.

We have two females which extend the distribution of this species considerably.

Distribution — BOLIVIA, El Paylon, 5/6.II.1955 (Travassos, Barros et Albuquerque col.).

Edwardsops magnificus (Lane, 1942)

Chaoborus (*Edwardsops*), Lane, 1942, Rev. Ent., 13: 138.
Edwardsops Lane, 1953, Neotrop. Cul., 1: 107.

Distribution — BRASIL, State of Mato Grosso, Salôbra, 22/27.I.1955 six specimens also from Urucum, 28/30.I.1955; BOLIVIA, El Paylon, 5/6.II.1955, two specimens (Travassos, Barros & Albuquerque col.).

Edwardsops unicolor (Lane, 1942)

Chaoborus (*Edwardsops*), Lane, 1942, Rev. Ent., 13: 135.
Edwardsops, Lane, 1953, Neotrop. Cul., 1: 107.

One female from the type locality.

Edwardsops boliviensis, n. sp.

Length of body 4 mm.; of wing 2,5 mm.

Female — Mouth parts short, expanded, blackish. Palpus blackish; segments I and II small, globose, II whitish on joint with III; III broad and one third longer than I and II together; IV broad as long as III; V slender and one and a half times longer than IV. Clypeus yellowish white, about twice as long as broad, sparsely pilose. Antenna with globose torus, yellowish but with a small dark internal mark; flagellar segment I two and a half times as long as wide, yellowish, with a light brown ring on apical third; other segments short, subcylindrical and dark brown. Vertex yellowish white. Occiput yellowish white in the middle but dark brown on the sides and sparsely pilose.

Thorax: Pronotal lobe blackish brown above, with about twelve dark hairs, whitish below. Mesonotum with the three marks completely fused, the sides broadly white from the anterior margin to the root of wing, the fused marks have dark margins, mesially they are yellow and tend to grey towards the sides; a distinct longitudinal blackish line from the anterior portion to scutellum; acrostichal and dorsocentrals rubbed off in our specimens but with numerous implantations. Scutellum traversed by the longitudinal mesial line, the rest yellowish except the angles which are slightly darkened (hairs also rubbed off but with numerous implantations on the marginal border). Postnotum yellowish. Pleura with dark brown posterior pronotum, the rest yellowish with indications of two transversal blackish stripes.

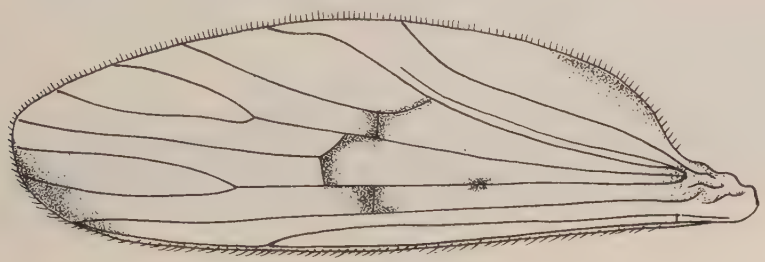

Fig. 1 - *Edwardsops boliviensis,* sp. n.

Wing with venation and marks as in fig. 1. The following dark brown marks were observed: — a rounded spot in middle of stem of 2nd. vein; a spot on cross-vein from the 1st. to the 2nd. veins; cross-vein from 2. to 3rd. veins itself dark; lower branch of 5th. and base of upper branch, up to cross-vein also dark; base of forks of 2nd. and 4th. veins slightly darker. Haltere whitish, base of knob very slightly darker.

Legs with yellowish integument and covered with dark brown hairs. Front tibia longer than the corresponding femur by one sixth. Claws simple, long and dark.

Abdomen long and with the segment broad and nearly quadrate. Tergites yellowish white in the middle, with blackish, narrow, lateral marks which, from base, nearly reach the apex of segments; above them there are numerous blackish dots. Sternites whitish with numerous distinct blackish dots. Last abdominal segments ovate. Cerci very small and yellowish.

Male, pupa and larva — Unknown.

Types — Holotype female; paratype one female. Registered in the collections of the "Departamento de Parasitologia, Faculdade de Higiene e Saúde Pública, under ns. 11.088 and 11.089.

Type locality — BOLIVIA, El Paylon, 5/6.II.1955 (Travassos, Barros et Albuquerque col.).

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RESUMO

Estudando uma coleção de Culicideos do gênero *Edwardsops* proveniente do Brasil e da Bolivia os autores encontraram uma nova espécie e aproveitam o ensejo para dar uma chave para as espécies que ocorrem na região Neotropical.

Rev. Brasil. Ent. 4: 209-212 - 5-III-1956 - São Paulo

UEBER RASSEN BEI *ECITON* (HYM. FORMICIDAE) (1)

POR

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Die Inflation der subspezifischen Kategorie (Subspecies, Unterart Rasse) in der zoologischen Nomenklatur ist eine Dekadenzerscheinung, die letzten Endes auf Darwin zurueckgeht. Die Namengeberei geht ins Uferlose; Systematik ist zu einer Nomenklaturaffaire geworden. Heute hat bereits eine Reaktion eingesetzt, und einige Systematiker (Brown, Wilson) gehen so weit, zu behaupten, die Rasse oder Unterart sei nichts weiter als ein taxonomisches Artefakt und muesse aus der zoologischen Nomenklatur ganz verschwinden. Die Wahrheit liegt auch hier, wie so oft, in der Mitte. Sowohl der uebertriebene Rassenkult, wie die radikale Negierung der Unterart als einer biologischen Einheit finden keine Stuetze in den Tatsachen, wie sie in der Natur vorliegen.

Der Grundfehler der modernen Rassenkreislehre (Kleinschmidt, Rensch) besteht darin, dass sie nicht von der Art ausgeht. Die Rasse (Unterart) ist keine selbstaendige Kategorie. Jede Rasse gehoert eindeutig zu einer bestimmten Art, von der sie sich abgespaltet hat. Rassenbildung ist ein Epiphaenomen der Art (Kuhn). Das Studium der Rassen einer bestimmten Tiergruppe kann also erst in Angriff genommen werden, wenn die Arten vorher genuegend geklaert sind. "This happens only after workers in a field feel a sufficient thorough acquaintance with its species to undertake detailed analysis of variation within those species". (J. A. Peters, 1954).

In einer groesseren Arbeit ueber "Die Wanderameisen der Neotropischen Region" (im Druck) habe ich auch zum Rassenproblen ausfuehrlich Stellung genommen. Bei verschiedenen *Eciton*-Arten (z.B. *burchelli, vagans, mexicanum, lucanoides*)

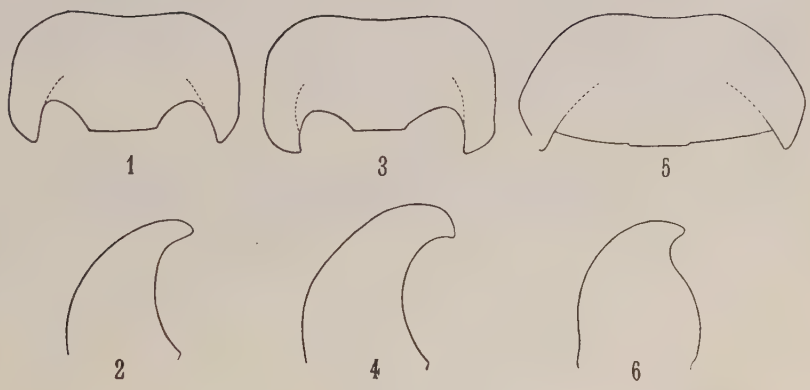
(1) Von der Redaktion erhalten am 29 September 1955

konnten Rassen mit Sicherheit festgestellt werden. Nicht alle Rassen sind schon voellig geklaert, weil nicht immer alle Kasten vorlagen. Aber alle Rassen waren morphologisch differenziert, d.h. diskontinuierlich. Bogert (1954, p. 112) sagt mit Recht: "Subspecies should be recognized only when sharp discontinuities in the trends of one or more individual characters can be demonstrated... Little is gained by the application of names to portions of a continuous cline". Rensch (1934, p. 14) spricht vom "Primat der geographischen Verbreitung". Aber geographische Verbreitung ist ein inhaltsloser Begriff, wenn nicht zunaechst feststeht, *was* verbreitet ist. Diese Kenntnis kann aber nur das Tier selbst vermitteln, d. h. der morphologische Vergleich ist die Grundlage nicht nur fuer die Art —, sondern auch fuer die Rassen-Systematik. Auf Fundortzetteln kann man keine Systematik aufbauen. Die Ueberspannung des geographischen Prinzips fuehrt in die Irre.

Rassenunterschiede treten bei *Eciton* besonders bei den Geschlechtstieren in Erscheinung. Zuweilen sind sie mehr bei den Maennchen, zuweilen mehr bei den Weibchen ausgepraegt. Beim Weibchen ist die Form des Petiolus von Bedeutung. Es wurden allerding bisher nur wenige Faelle bekant, denn *Eciton*-Weibchens sind selten, und gewoehnlich liegt kein Material aus dem gesamten Verbreitungsgebiet der Art vor.

Wenn die Verbreitungsareale zweier Rassen derselben Art sich an einem Ort ueberschneiden, koennen beide Rassen am selben Ort vorkommen. Ein solcher Fall wurde fuer *Eciton vagans angustatam* Rog. und *vagans mutatum* Borgm. mit Sicherheit festgestellt. Beide wurden in Costa Rica an demselben Ort gefunden. Die Artzugehoerigkeit zu *vagans* und die Rassenverschiedenheit beider steht absolut fest. Das Weibchen von *vagans mutatum* hat keine Petiolarhoerner, die sonst bei *Eciton* nie fehlen. Der Unterschied ist in der Tat so gross, wie er selbst bei Arten selten vorkommt. Aber man darf den Wert *eines* Merkmals nicht ueberschaetzen. Schon Darwin sagt in seinem Werk "The Origin of Species" (p. 321): "It has been found that a classification founded on any single character, however important that may be, has always failed". Auf den *Gesamtkomplex* der Merkmale kommt es an, und dieser laesst sowohl beim Weibchen wie beim Soldaten und keinerlei Zweifel, dass *mutatum* zu *vagans* gehoert.

Ein weiterer, hoechst interessanter Fall von Rassenverschiedenheit in der Bildung des Petiolus bei *Eciton* wurde neuerdings aus Panama bekannt. Dr. Schneirla, der sich bereits um die Erforschung der *Eciton*-Biologie sehr verdient gemacht hat, fand im Maerz 1955 auf Barro Colorado Island, C.Z., einen *Eciton*-Zug "on emigration" und erbeutete auch das Weibchen, das er fuer *vagans* hielt. Da in Barro Colorado Insland *vagans mutatum*



CORREÇÃO AO VOLUME 4

Esta gravura substitue a da página 211.

BERICHTIGUNG ZUM 4 BAND

Diese Abbildung erzetzt die von Seite 211.

vorkommt, mir aber von dort nur Soldaten vorliegen, bat ich um leihweise Ueberlassung des Weibchens. Bei der Untersuchung desselben stellte ich mit Ueberraschung fest, dass es sich um eine neue Rasse von *dulcius* For. handelt, einer Art, die bisher nur aus Argentinien und Brasilien (Goiás) bekannt war. Das Material kam gerade noch rechtzeitig, um in meiner Monographie der Ecitoninen erwaehnt zu werden. Ich beschrieb die neue Rasse als *dulcius crassinode* wegen des verbreiterten Petiolus des Weibchens. Ich gebe hier erstmalig Abbildungen desselben, nebst Vergleichsbildern des Weibchens von *dulcius* s. str. von Goiás und Córdoba. Fig. 1, 3 und 5 zeigen den Petiolus in Dorsalansicht; Fig. 2, 4 und 6 zeigen das rechte Petiolarhorn von links und etwas schraeg von oben.

Der Fund von Barro Colorado Island ist taxonomisch von grosser Bedeutung, nicht nur, weil er unsere Kenntnis der geo-

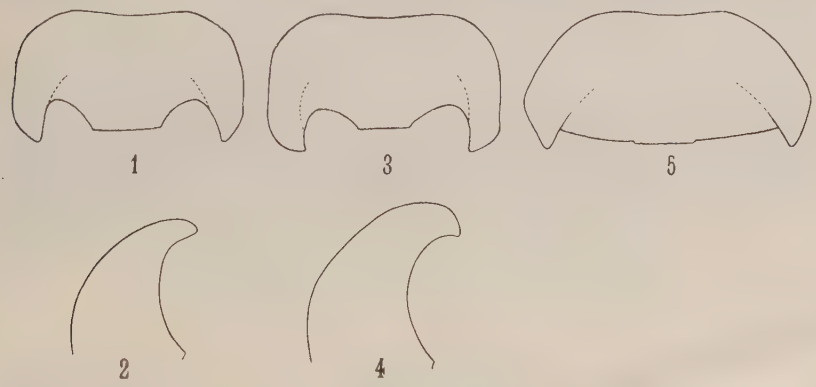


Fig. 1-4. *Eciton dulcius* For. s. str., Weibchen, Petiolus (Fig. 1-2, Ex. von Goiás; Fig. 3-4, Ex. von Córdoba). - Fig. 5-6. *Eciton dulcius crassinode* Borgm., Weibchen von Barro Colorado Island. [Borgmeier del.].

graphischen Verbreitung von *dulcius* wesentlich erweitert, sondern auch, weil er die Existenz von morphologisch gut differenzierten Rassen bei *Eciton* erneut beweist. Dass es sich in diesem Falle um eine Rasse von *dulcius* handelt, und nicht etwa um eine verschiedene Art, geht nicht nur aus der Morphologie des Soldaten (Occipitalecken ohne Dorn; Epinotaldornen spitz), sondernn auch aus der enormen Verbreiterung des Petiolus beim Weibchen hervor. *Eciton dulcius* ist die einzige *Eciton*-Art, bei der im weiblichen Geschlecht die Breite des Petiolus die Kopfbreite uebertrifft. Bei *dulcius* s. str. ist er 3,4 mm breit, bei *dulcius crassinode* sogar 4 mm.

Auf die geringen Unterschiede, welche das Weibchen von Alta Gracia (Córdoba) gegenueber den Weibchen von Campinas

(Goiás) aufweist (s. Fig. 3-4), habe ich in meiner *Eciton*-Monographie bereits hingewiesen. Sie sind als individuelle Variationen anzusehen und haben taxonomisch keine Bedeutung. Es kann also kaum ein Zweifel sein, dass die var. *jujuyensis* For. (von Jujuy) sowie *hirsutum* Sant. (von Misiones) wirkliche Synonyme von *dulcius* s. str. sind.

Was die Rassenmerkmale angeht, welche *crassinode* von *dulcius* s. str. trennen, so sind sie den Artmerkmalen von *dulcius* gleichsam ueberlagert oder angekoppelt. Die beiden Rassen gemeinsamen Merkmale sind als spezifisch anzusehen, die sie trennenden Merkmale als subspezifisch. Wenn Darwin sagt (p. 45): "Certainly no clear line of demarcation has as yet been drawn between species and sub-species", so kommt das daher, dass er sowohl von der Art als von der Unterart falsche Vorstellungen hatte. Von der Art sagt er (p. 46): "I look at the term species as one arbitrarily given, for the sake of convenience...". Und die Unterart definiert er (p. 45): "The forms which in the opinion of some naturalists come very near to, but do not quite arrive at, the rank of species". Haette Darwin recht, so bedeutete das den Tod aller wissenschaftlichen Systematik. Aber die Tatsachen sprechen eine zu klare Sprache: der Artbegriff *"dulcius"* und der Rassen bergriff *"crassinode"* sind nicht arbitraer gebildet, sondern aus der Natur abgelesen. Solange der objektive Realismus nicht den subjektiven Nominalismus in der Taxonomie ueberwindet, wird der Streit um die Subspecies fortdauern und das Ansehen der Systematiy untergraben!

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Conde Amadeu Amidei Barbiellini

Com a morte do Conde Amadeu Amidei Barbiellini, ocorrida dia 11 de setembro último, perde a Entomologia brasileira o seu mais apaixonado divulgador, aquele a quem se deve o lançamento da primeira publicação periódica, dedicada aos insetos, no Brasil.

Nasceu Amadeu Barbiellini em Ancona (Roma) no dia 11 de julho de 1877. Filho de tradicional e antiga família da Itália, herdou o título de Conde conferido pelo Vaticano a um dos seus antepassados. Dentre êstes se conta Santo Amadeu Amidei, da Toscana, que existiu no século XIII.

Em sua pátria frequentou cursos de línguas e medicina. Dedicou-se ao estudo do Latim, que manejava com desenvoltura, e conhecia a língua chinesa, a qual falava com desembaraço.

Viajou por toda a Europa, esteve nos Estados Unidos da América do Norte e em quase todos os países da América do Sul. Em 1895 visitou o Brasil, levando daqui a mais agradável das impressões ao retornar à Itália. Esteve durante seis ou sete anos na China, onde desempenhou a função de intérprete da Missão Militar que para lá fôra enviada pelo govêrno italiano. Voltando para sua pátria ingressou na Imprensa, tornando-se Diretor Geral de uma grande emprêsa jornalística daquela época, a do Cav. Scotti.

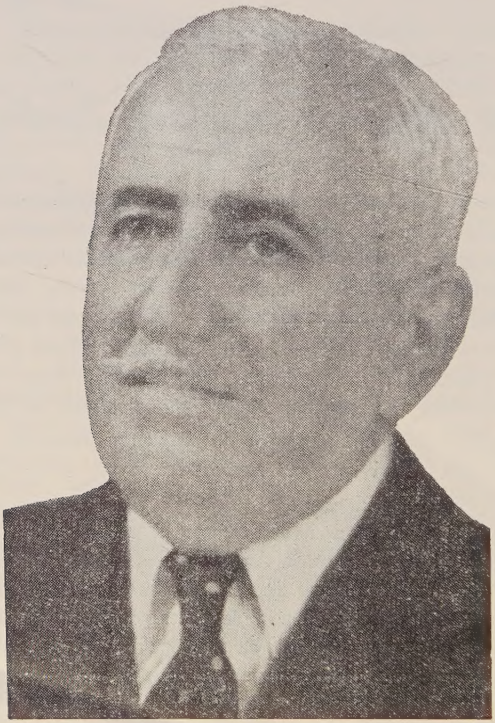
Em 1907, acompanhado da esposa, em quem sempre encontrou cooperação dedicada principalmente nos momentos difíceis de sua vida, e já com uma filha, veio fixar residência no Brasil, onde o seu lar se enriqueceu com mais dez filhos (8 mulheres e 2 homens). Aqui, durante algum tempo, exerceu a função de cronista-chefe do Jornal "Fanfulla", apreciado diário da colonia italiana em São Paulo.

Sempre que a oportunidade se lhe oferecia, externava elevados conceitos sôbre a terra brasileira que, com entusiasmo, chamava de "sua segunda pátria, tão querida como a primeira, sinão mais", em vista de aqui ter nascido a maioria dos seus filhos, os seus onze netos e as suas onze netas.

Amadeu Barbiellini desde criança mostrou acentuado pendor pela Entomologia. Referia-se sempre ao encanto que sentia quando, na sua infância, folheava as páginas de uma revista alemã contendo figuras coloridas de insetos. Até quase os últimos dias de sua vida embevecia-se ao examinar os números modernos dessa mesma publicação que lhe recordava o passado distante. Con-

tou-nos um dos seus familiares que o Conde Barbiellini nunca saía de casa sem estar munido de seus tubos, alfinetes e uma rêde para a captura de insetos.

Todo o material que colecionava remetia aos especialistas para identificação, não escondendo seu orgulho quando uma nova espécie recebia o nome de



CONDE AMADEU AMIDEI BARBIELLINI.

"barbiellinii", justa homenagem oferecida a quem proporcionara tal descoberta. Vários gêneros monotípicos foram creados com espécies que levam o seu nome, havendo na literatura entomológica e aracnológica, segundo nos foi dado constatar, 2 gêneros e 32 espécies a êle dedicados. O material, de cujo estudo resultou estas novas entidades taxionômicas, foi quase todo capturado nos arredores da Capital paulista, excetuando-se apenas alguns espécimes colecionados na China.

Na relação dos gêneros e espécies dedicados a Barbiellini verifica-se certa preponderância de Dípteros, indicando, aparentemente, uma preferência por êstes insetos. Todavia, quer-nos parecer que o Conde Barbiellini não se prendia a um único grupo, colecionando tudo o que lhe caía nas mãos. Sua coleção de insetos, há poucos anos atrás, foi doada a um dos nossos maiores entomo-

logistas que a incluiu na coleção da Escola Nacional de Agronomia do Rio de Janeiro.

São os seguintes os insetos e aracnideos com o nome de Barbiellini:

INSECTA

Ordem ODONATA

Família *Esnidae* — 1. *Remartinia barbiellina* Navás, 1911 (Genótipo)

Ordem HEMIPTERA

Família *Ploiaridae* — 2. *Gardena barbiellinii* T. Piza, 1944
Família *Reduviidae* — 3. *Apiomerus barbiellinii* C. Lima, Seabra & Hathway, 1951

Ordem PLECOPTERA

Família *Perlidae* — 4. *Forca barbiellinii* Navás, 1925 (Genótipo)

Ordem COLEOPTERA

Família *Pselaphidae* — 5. *Arthmius barbiellinii* Raffray, 1909
Família *Staphylinidae* — 6. *Atheta barbiellinii* Bernhauer, 1908
7. *Oxytelus barbiellinii* Bernhauer, 1908
8. *Palaminus barbiellinii* Bernhauer, 1908
9. *Phymatura barbiellinii* Bernhauer, 1908
10. *Stenus barbiellinii* Bernhauer, 1908
11. *Apocellus barbiellinii* Bernhauer, 1922
Família *Cerambycidae* — 12. *Eriphosoma barbiellinii* Melzer, 1927
Família *Curculionidae* — 13. *Cymatobaris barbiellinii* Bondar, 1949

Ordem DIPTERA

Família *Stratiomyidae* — 1. Gênero *Barbiellinia* Bezzi, 1922 (Genótipo: *B. hirta* Bezzi, 1922)
14. *Allognosta barbiellinii* Bezzi, 1908
Família *Asilidae* — 15. *Atomosia barbiellinii* Curran, 1935
16. *Eccritosia barbiellinii* Curran, 1934
17. *Mirolestes barbiellinii* Curran, 1935
18. *Ommatius barbiellinii* Curran, 1934
19. *Porasilus barbiellinii* Curran, 1934 (Genótipo)
20. *Promachina barbiellinii* Curran, 1935
21. *Stichopogon barbiellinii* Bezzi, 1910 (China)
Família *Syrphidae* — 22. *Microdon barbiellinii* Curran, 1936
23. *Quichuana barbiellinii* Ceresa, 1934
Família *Trypetidae* — 24. *Hexachaeta barbiellinii* Costa Lima, 1935
Família *Lonchaeidae* — 25. *Lonchaea barbiellinii* Bezzi, 1910
Família *Tachinidae* — 26. *Belvosiomimops barbiellinii* Townsend, 1935 (Genótipo)
27. *Euthera barbiellinii* Bezzi, 1925
28. *Melanoromintho barbiellinii* Townsend, 1935 (Genótipo)

Ordem HYMENOPTERA

Família *Scelionidae* — 29. *Hadronotus barbiellinii* Costa Lima, 1940
Família *Megachilidae* — 30. *Megachile barbiellinii* Moure, 1944

ARACHNIDA

Ordem OPILIONIDA

Família *Gonyleptidae* — 2. Gênero *Barbiellinia* Melo Leitão, 1944 (Genótipo: *B. hirsuta* Melo Leitão, 1944)
31. *Gonyleptes barbiellinii* Melo Leitão, 1932
32. *Stygnobates barbiellinii* Melo Leitão, 1927

Nutrindo elevado amor pela nossa flora e nossa fauna, onde encontrava terno enlevo para a sua alma de esteta, não foram raros os momentos em que deixou extravazar, pela palavra escrita, o quanto de sedução lhe propiciava a Natureza de nossa terra. Certa feita, procurando esconder com a sua modéstia as palavras elogiosas que a seu respeito escrevera o grande dipterologista Mário Bezzi, com quem manteve correspondência por mais de 20 anos, levantou o véo que encobria a sua constante e altruística preocupação, declarando:

> "Reconhecemos, é verdade, o entusiasmo com que sempre procuramos criar adeptos para o estudo dos insetos; o interêsse com que sempre nos esforçamos para reunir materiais entomológicos afim de tornar sempre mais conhecidas em todo o mundo os infindos tesouros com que a natureza dotou êste grande Brasil".

Espírito de escol, naturalista autêntico, não lhe era possível guardar, só para si, o que observava através o convívio diário com o campo. E dêsse desejo de tornar conhecidas nossas belezas naturais teria surgido, talvez, a idéia de fundar uma revista para transmitir a todos, em todos os recantos, as maravilhas que mantinham seu boníssimo coração em permanente aleluia.

E foi assim que, em 1908, iniciou as edições de um periódico intitulado "O Entomologista Brasileiro", a primeira revista de entomologia que foi editada na América do Sul. Tratando de um assunto especialisado e com um campo de interessados muito restrito, essa publicação teve vida efêmera. A ela se seguiu, em 1910, "Chácaras e Quintais", mensário que até hoje persiste graças à excelência de suas páginas dedicadas a assuntos relacionados a todos os aspectos da Agricultura, o que lhe grangeia um amplo círculo de leitores. Esta Revista, não só lhe oferecia possibilidades de satisfazer seu espírito, como também a oportunidade de divulgar conhecimentos mais adequados à índole do nosso povo. Editou, ainda, entre os anos de 1912 e 1936, o "Almanaque Agrícola Brasileiro", repositório de artigos de divulgação de alta classe, entre os quais muitos referentes à Entomologia.

Com o decorrer dos anos, porém, "Chácaras e Quintais" foi se tornando menos propriedade do seu editor que de seus leitores e consulentes. Prevendo a absorção total da Revista pelas questões agrícolas, reservou para seu uso exclusivo algumas páginas destinadas a uma Secção que denominou "No Mundo dos Insetos". Nesta Secção, por êle mantida com carinho inexcedível, propagava ensinamentos relacionados aos nossos insetos, tentando comunicar a todos o fascínio que lhe infundia a vida e os costumes dêsses animais. Cultuava, assim, a grande paixão de toda a sua existência: a Entomologia.

Repouse sua alma na santa paz do Senhor.

MESSIAS CARRERA